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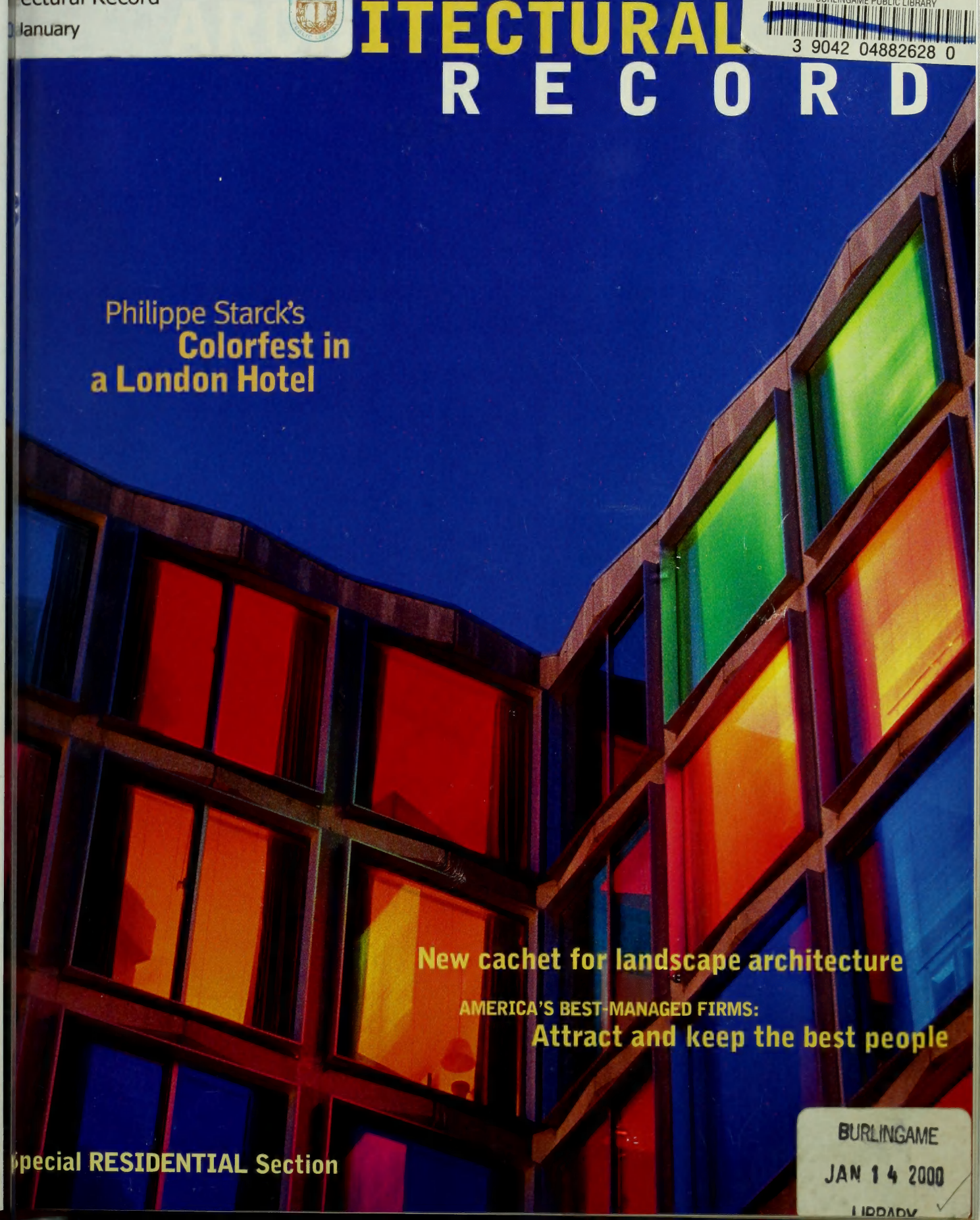
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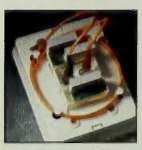


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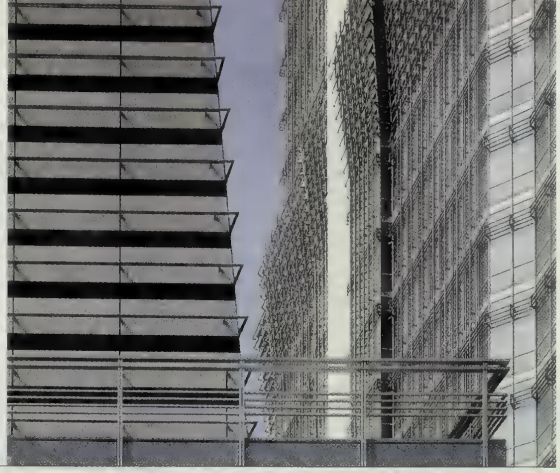
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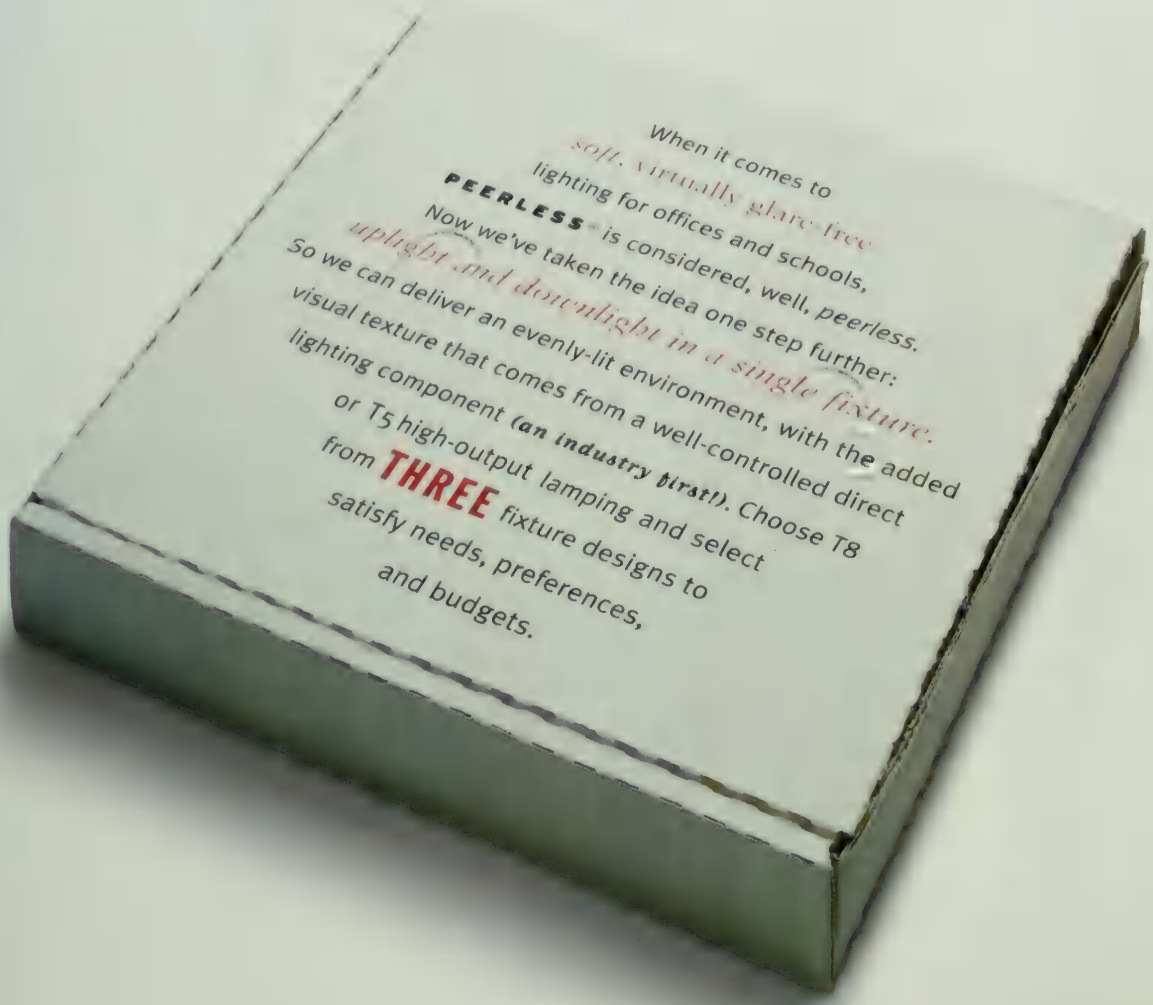
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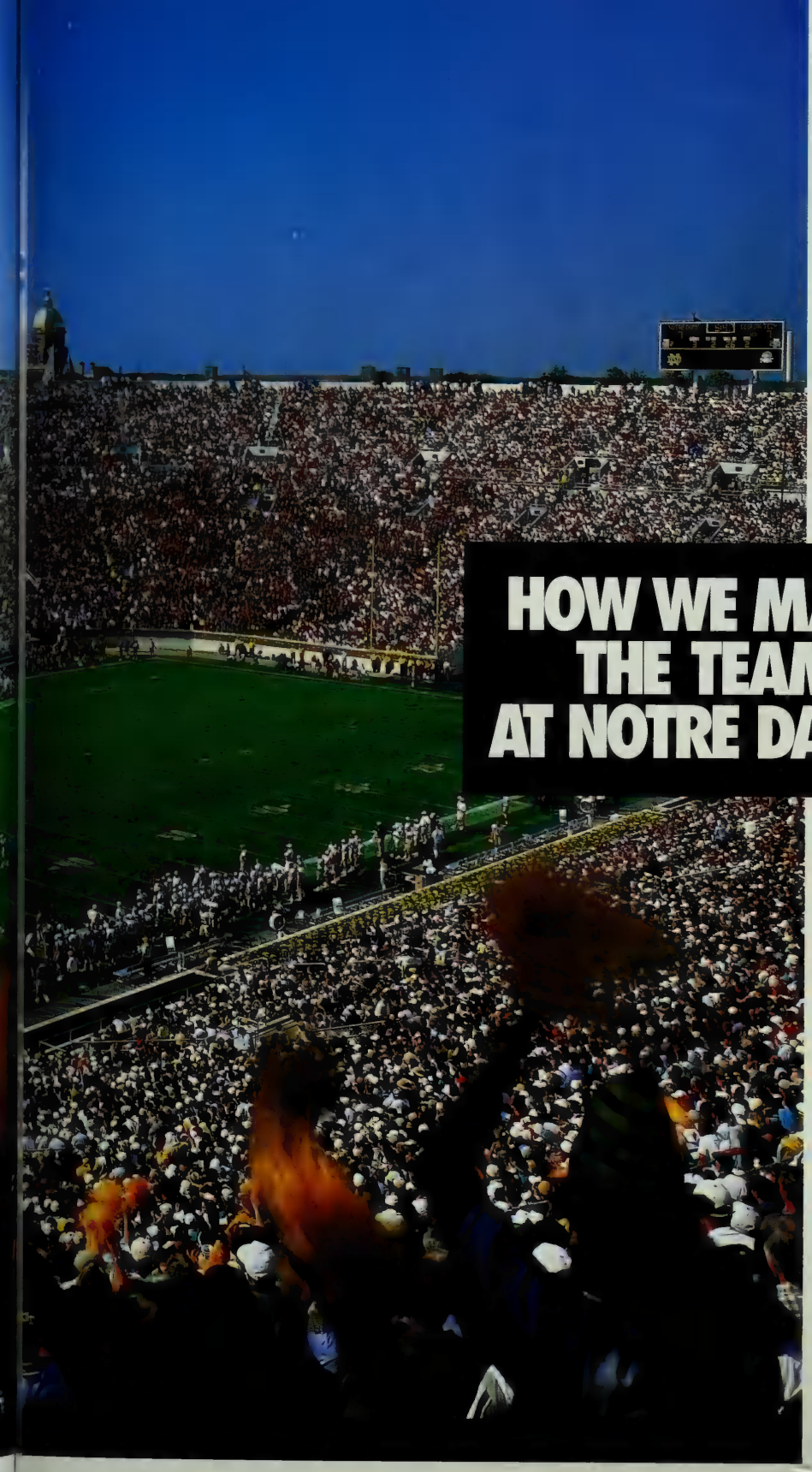
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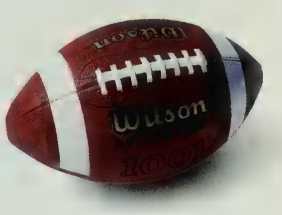
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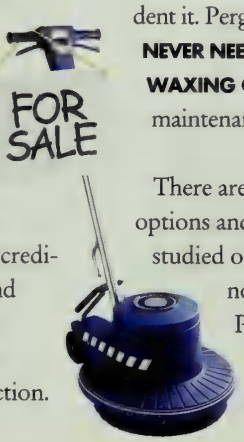
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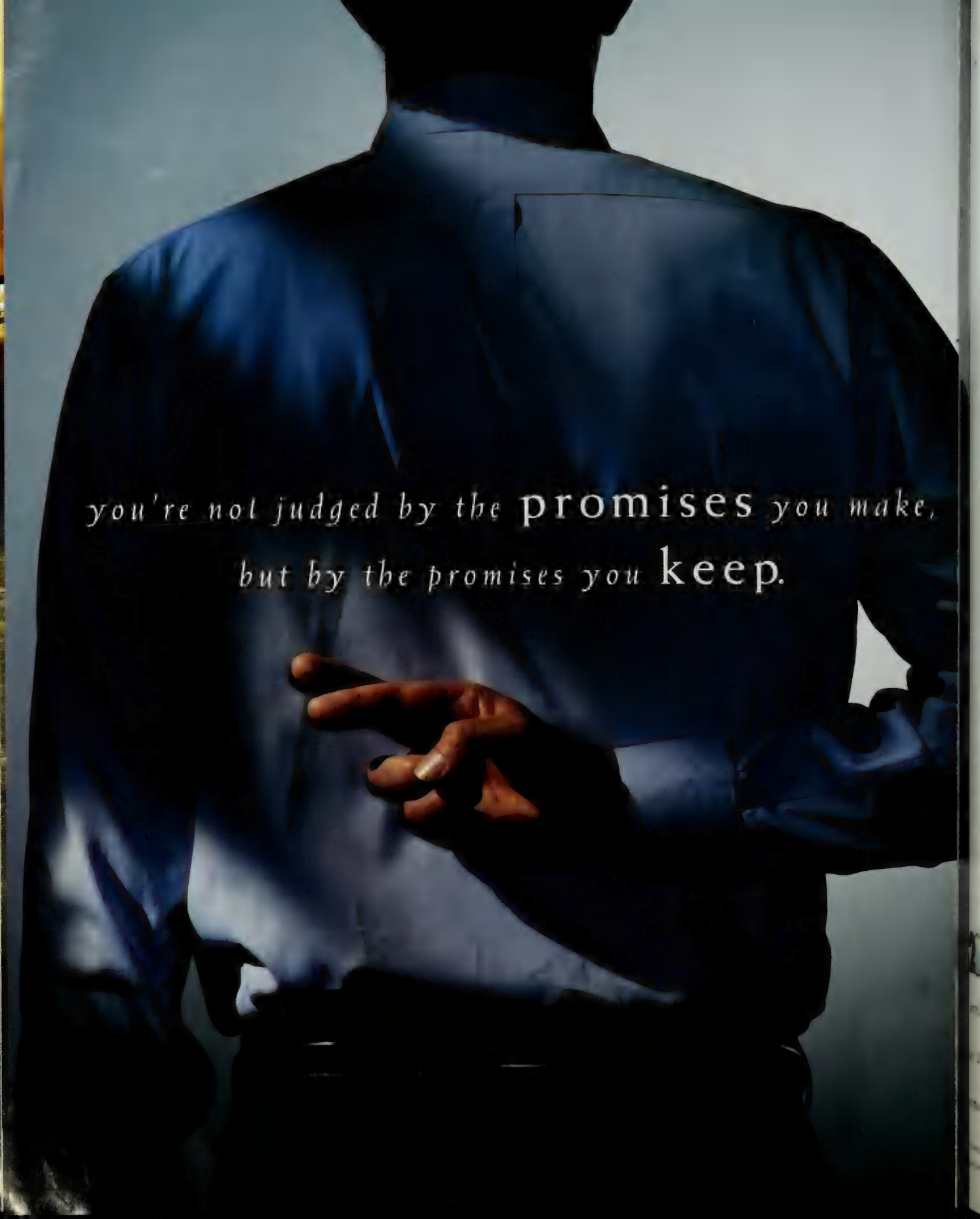
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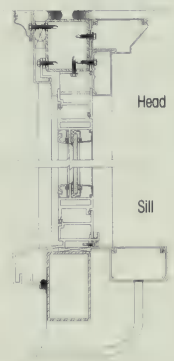


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Where do women stand?

Editorial

By Robert Ivy, FAIA

Annie Leibovitz's photographs of women, mounted large-scale at the Corcoran Gallery, stopped and shook me in a way that recent, more sensational exhibits in other media have not. Using the conventional means of the camera, Leibovitz documents women in a variety of settings and occupations—as coal miners, bodybuilders, and Supreme Court justices—capturing something essential, whether intelligence or strength or the power of conscious beauty, along the way. One of her subjects is Maya Lin.

Susan Sontag, who wrote an essay in the book accompanying the exhibit, Women, pointed out a central fact: "There have been tremendous changes in women's consciousness, transforming the inner life of everyone: the sallying forth of women from women's worlds into the world at large, the arrival of women's ***ambitions****." With the number of female architects increasing, we're no longer asking, Can they become architects? We're asking, Where are they heading? What do they want for the future?*

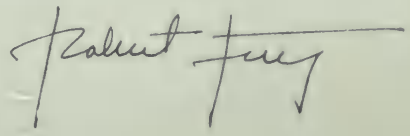
Today, women manage their own firms and form partnerships with male colleagues. Prominent designers and leaders, such as Billie Tsien, Merrill Elam, Julie Snow, Susan Maxman, and the reigning queen of zoom, Zaha Hadid, regularly appear in the media, while many women behind the scenes are also making architecture.

However, "Architecture has not changed as much as we would like to think," states AIA vice president Helene Dreiling, AIA. *The National Architectural Accrediting Board reports that approximately 35 percent of the 21,000 students who begin professional bachelor's and master's degree programs in architecture are women and that a similar percentage complete their studies. The number of women that achieves licensure, however, appears to be significantly smaller.*

One of the few available sources for such data, the 1997 AIA Firm Survey *(which is currently being updated), found that only 10 percent of licensed architects in firms were women. Including the licensed women architects in nontraditional jobs, the proportion might swell to as much as 20 percent, but no one really knows the facts. This void in our common understanding, and the apparent gap between education and licensure, deserves our attention.*

In an era focused on issues of equality, we need to assess where women stand in the year 2000. What are their needs? Is this "equality" basically lip service? Are women finding the work situations they want, or do they bump their heads against a glass ceiling at the upper echelons of management? What benefits are available to the single parent, many of whom are women? Has architecture's historically male-dominated culture adjusted its clubby work patterns to attract women, or are women choosing alternative paths—in new media or government or teaching, for example—that allow a more balanced way of life? To borrow from Sontag, What is their ambition?

While much has been accomplished in emancipating women's creative and intellectual powers, a long century separates Julia Morgan from Maya Lin, as portrayed by Annie Leibovitz. For our sister architects, now is the time for us to raise substantive questions about the status of women and to press for resolution. While much has improved for women in architecture, all is not yet healed.



You may notice something new in the pages of the January 2000 issue of ARCHITECTURAL RECORD. In this issue, our design snaps out with contemporary typography and coloration and the layout features a more assertive feel. New departments, including Profile, Snapshot, and Practice Matters, join the blend of regular offerings, and we present a special section devoted to residential design. Every magazine needs periodic refreshing, and we considered the turn of the century an appropriate moment. Enjoy it.



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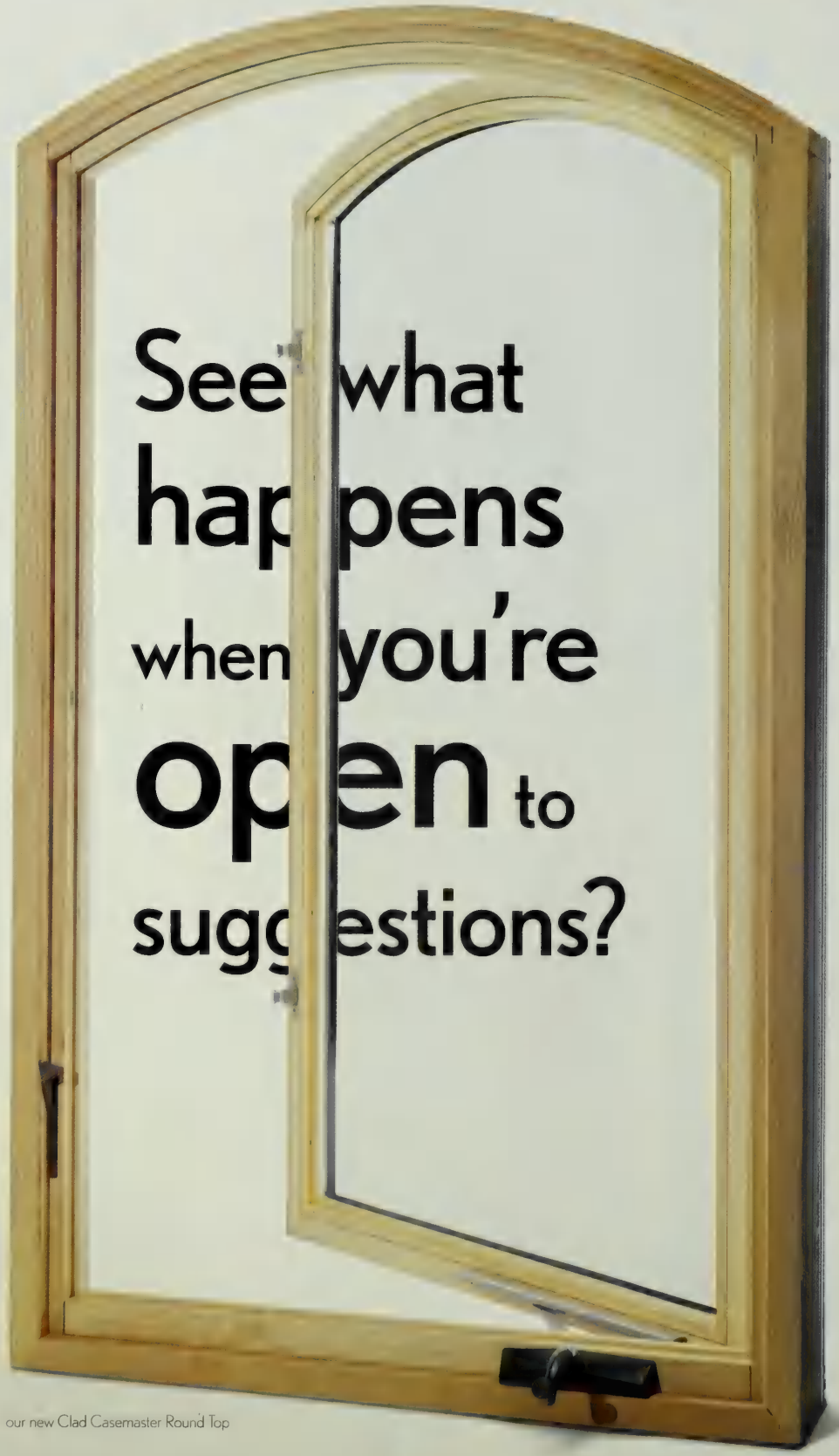
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Letters

The community connection
"Public Housing: A Hard Assessment" [November, page 76] was the most insightful and important ARCHITECTURAL RECORD article I've read in 20 years. The future impact of public housing on our nation's inner-city communities and residents is of the greatest significance, and the response by HUD and the New Urbanism movement must be fully and honestly evaluated to ultimately realize the best potential outcomes. The article and individual project summaries really get to the point.

But there is one crucial part of the successful equation missing from this article's analysis. While the author notes that "New developments that appear to be doing well [. . .] combine bricks and sticks with a range of social services," how that is achieved is unreported. The answer is the surrounding community, public housing's inner-city neighborhood, and its capacity to extend both formal support services and unstructured "social capital" into the rebuilt projects.

Community-building is the hardest discipline of all to accomplish, and it will not receive the focus and resources it needs until it is at last fully valued.
—John Elberling
Executive VP, Tenants and Owners Development Corp.
San Francisco

They do it their way
Public housing here in Hong Kong doesn't suffer from the government's lack of involvement. The largest landlord in the world, Hong Kong has adopted Le Corbu's plan for the Garden City as a design standard. High-rises rife with design shortcomings have been relentlessly planted like trees, exacerbating Hong Kong's congested living environment. All this, while New York public housing invited architects like Richard Meier to build impressive housing that fulfills the needs of humans. Enlightened governments are what will keep architects from ignoring public housing.
—John Yuan
Hong Kong, China

The client side of the street
Mr. Rybczynski's Critique [November, page 29] advocating Olmsted's nonformalist approach to landscape design was engaging, but flawed in its understanding of democratic principle. For the author, formal planning is unsuited to America because it elevates "institutions and organizations above the individual." This emphasis on the individual distorts the fact that true democracy involves balancing the rights of the individual with the collective needs of civil society. Unfortunately, such cultural narcissism has found its way into the architectural profession, where self-indulgence manifests itself in idiosyncratic designs accessible to few outside a privileged circle.

The preoccupation with self is further revealed in the arrogant attitude many architects take toward tradition. David Hill's piece on the current scene in Denver [Correspondent's File, October, page 47] is a perfect example. Mr. Hill scolds the people of Denver for their "conservative aesthetic" and "knee-jerk traditionalism," which he claims stands in the way of good architecture. The implications of this presumptuous posture—that the public has bad taste and that if they would just get out of the way of the architects they would get what's good for them—goes a long way toward explaining why our profession is in the state it is.
—Donald M. Rattner, Ferguson Shamamian & Ratner, Architects
New York City

Fees of great strength
The articles about professional fees



["The Fee Dilemma Parts I and II," October, page 110 and November, page 60] were absolutely terrific. I applaud your efforts to acknowledge and emphasize this important topic. Imagine how attractive the profession would be for young people if a firm's profitability was the key to attracting graduates from the top schools.

Fortunately, some recent trophy buildings (i.e., the Bilbao Guggenheim and the Getty) have created new business climates. These buildings attract visitors and create commerce and, therefore, contribute to the local economic base. Hopefully, architects' fees will increase as a result of producing profitable design.

—Karen Thomas, AIA
New York City

School's out

As a recent architecture graduate, I feel compelled to respond to Chris Ford's comments [Letters, November, page 20] regarding the "Back to School" feature [September, page 112]. Not all critics of architectural education are practitioners unwilling to assume the role of mentor. Some of us are fresh out of the educational environment and wondering aloud just what it was we were supposed to have learned. I agree that professional practice should be a classroom, but it is in this classroom that graduates should be able to build on a foundation of knowledge laid down at school.

If the schools are so nonessential, perhaps aspiring architects should be ushered into the professional fold directly from secondary school. At least it would lengthen our careers.

—Brian D. Beland
Architectural Intern
Lake Ronkonkoma, N.Y.

Live and Lerner

I would like to add a voice from the surrounding community to your wisely unimpressed review of Columbia University's Lerner Student Center [November, page 95].

Aesthetically speaking, the building's only redeeming characteristic is its Broadway wing, rumored to have been designed under strict traditionalist orders from the Columbia Trustees. New York's Guggenheim has tempted an entire generation of architects who are not Frank Lloyd Wright to think they are fit to design context-flouting buildings.

Bernard Tschumi has delivered this monster with all kinds of intellectual bombast about "deconstruction" and the other trendy philosophical buzzwords. The attempt to substitute rationalizations for aesthetic achievements is squarely in the worst tradition of modern art, as famously pilloried in Tom Wolfe's book *The Painted Word*.

In truth, this building is unworthy to be covered in, let alone be given the cover of, a magazine of your caliber. Perhaps its mixture of pseudo intellectual bombast masking commercial banality is appropriate for contemporary Ivy League undergraduates. One would hope not.

—Ian Fletcher
Morningside Heights Residents Assoc.
New York City

Corrections

An caption in "Public Housing in 1999: A Hard Assessment" [November, page 78], incorrectly credited the design of new rowhouses at the Henry Horner project. The correct architects are Johnson & Lee, Ltd., Hammond Beeby Rupert Ainge, and Brook Architecture. In December's Millennium project section [page 88], a credit for digital consultant Jose Sanchez was omitted for Kolatan/Mac Donald's Resi-rise skyscraper. In December News [page 62], a credit for HNTB, which is jointly designing the new Boston Convention Center with Rafael Viñoly Architects, was omitted from the article. A credit for construction manager Cheryl Gaston, from 3D International, was left out of the Jean Parker Elementary School project [November, page 122]. RECORD regrets the errors. ■

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The best additions embrace the present without ignoring the past

Critique

By Paul Spencer Byard, FAIA

For architects designing new projects involving old buildings, these are good times—but also difficult.

Additions are increasingly recognized as a building type of distinct and special interest, a thinking person's paradigm for changing distinguished existing buildings. At the same time, architects undertaking authentic work with older structures must struggle with the pervasive fear of creativity displayed by postmodern conservatism, its prejudice against change, and its preference for papering over reality with saleable fake sameness and pastiche. In addition, those architects attempting to be innovative often have to face preservation agencies—the original makers of the case for preservation as a public right—that have trouble keeping their nerve under the weight of politics.

Some of this burden may be lifting as the embarrassments of pastiche—the damage done by its pretense, the humiliating things it says about us—sink in. The loudest and most fearful opponents of change now claim to hate the hodgepodge and imitative characteristics of pastiche architecture—even as they push for it. Meanwhile, successful additions are continuing to create some of our most vital and instructive art.

Paul Spencer Byard, FAIA, is a principal in the New York City firm Platt Byard Dovell Architects and the director of the Historic Preservation Program at the Columbia University Graduate School of Architecture, Planning and Preservation. His book The Architecture of Additions *was published in 1998 by W.W. Norton.*

A boon for Berlin

Take the Reichstag, Berlin's parliament. Few old buildings offer a richer opportunity to come to terms with the whole meaning of our century. It starts as a fine representative of the posturing official architecture of the century's first years. Its pomp is the relatively benign pomp of our Library of Congress, but bulked up and toughened to fit the imperial ambitions of the Kaiser, who set in motion the horrors brought us by World War I. Few buildings absorbed the pain more intensely than the Reichstag, first as the Nazis' beacon of disinformation, then as the smoldering base for the Red flag of one of its conquerors. For 50 more years, at the front line of the evolving conflict, the battered building was an emblem of a world in limbo until it could resolve the huge destructive potential of the Cold War.

Lord Norman Foster's domed addition to the Reichstag marks the startling resolution of that war—the melting away of the Soviet presence and the Berlin Wall—and what came with it, one of the century's most legitimate moments of optimism. His addition is rooted in Modernism, 20th-century architecture's great meliorative rebellion, and in the discipline by which the Modernists required us to embrace the present, to find strength and beauty in the realities of our time, not the dead residues of bygone styles. Foster's addition wells up from the middle of the old building like optimism itself, domelike enough for comfort but mostly very strange, an immense Fresnel lens to bring in light and let the contemporary German public literally oversee what goes on in its government.



Lord Norman Foster's domed addition to the Reichstag, the German parliament, makes a vivid new partner for a storied building.

With Foster's surehandedness in balancing old and new, the addition is just strong enough and novel enough to make a vivid partner for the old building and help it get back to work. Brought along by the addition, the old building is free to be what it is at its age, a scarred representative of old ideas about public architecture, contributing its strength and lessons to the service of contemporary government.

Reality finds a way

Just as Foster's addition emerged from the old Reichstag, Renzo Piano's beautiful Debis building emerged from nearby Potsdamer Platz—now being rebuilt after being demolished in the war—despite the weight of local politics favoring pastiche and rigid historicism. However valid some of its ideas about urban scale and shape might have been, the concept of Berlin of Hans Stimmann, building director after the Wall fell, was to make the city look as if it were old again, as if we could reduce the impact of what had

intervened by pretending it all hadn't really happened. But like Foster's addition and Piano's new tower, the reality of our times—abetted by the best architectural imaginations—welled up in Berlin notwithstanding.

A Penn for today

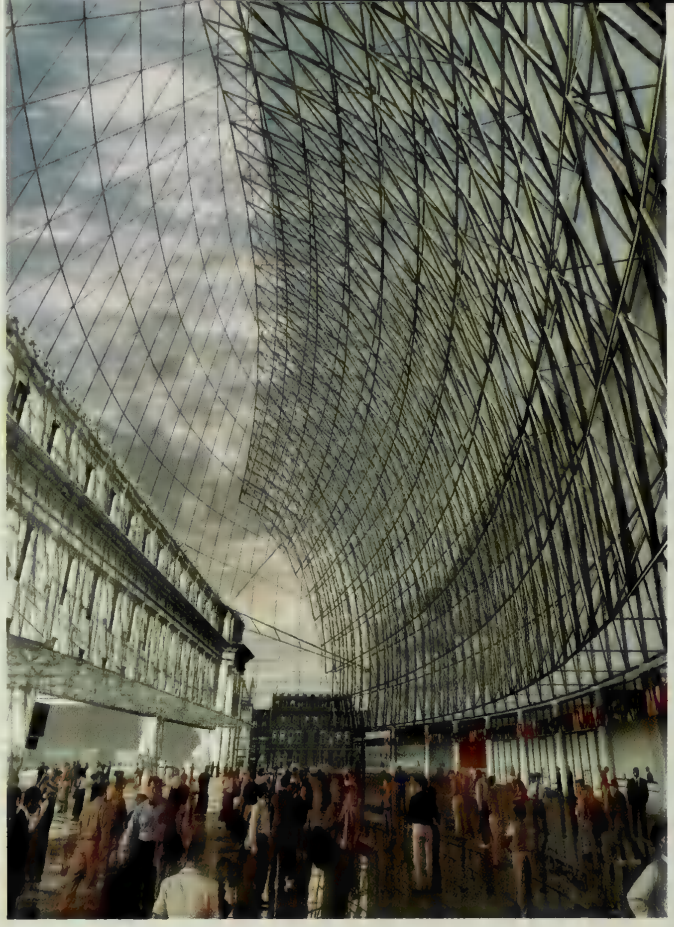
A similar breakthrough may be appearing in the proposal for a new Penn Station in New York City, though the problem involved is more mundanely difficult. The hope of the project is to make a successor to New York's lost masterwork in what is now the Farley Post Office—a minor McKim, Mead & White monument that sits above the railroad platforms across the street from the site of the original Penn Station (and its dismal replacement). We like the post office for the good building it is, and it tempts us with the apparent chance its reuse offers to atone for our sins.

The first problem for the proposal, which was created by David Childs, FAIA, of Skidmore, Owings & Merrill, is that the post office isn't a railroad station and doesn't really want to be one, given the physical obstacles to entry and circulation built in to sanctify the safety and security of the post—and the fact that the building's best spaces will be kept in use by the post office.

The deeper problem is that when we gave away the old station to developers (who then demolished it), we lost control of the best site on the West Side of Manhattan for a station, locked as it is between a number of subways and avenues that tap directly into the city's arteries.

The great thing about the current proposal is that it addresses the problems with the site and existing structures head on, with all the architectural strength it can muster. As with Foster's addition, the design here needs to establish the scale of the enterprise to which the new and the old will hereafter contribute, the larger frame of reference in which the post office can be brought to contribute to what the proposal stakes out as the larger social good. At the same time, the architecture needs to explain the westward schlep travelers will face to get past the post office to the far end of the old train platforms, induce them to make the trip, and reward them once they get there.

The proposal takes on the job with a great glass fragment of a sphere, extending above the roofline in the middle of the building, that implies a form larger than either the post office or the new station and refers, by its focus, down to the platforms and toward the old station site. By backing up the regular, symmetrical post office facade with a contemporary enclosure just as orderly, the fragment drives the whole, by its implication of absence, back toward the lamented lost station.



SOM's proposal to turn Manhattan's main post office into a new Penn Station centers on a ticketing lobby topped by a soaring glass extension.

ADDITIONS ARE COLLABORATIONS ACROSS TIME THAT EMBRACE CHANGE AND PUT THE OLD AND THE NEW IN SERVICE TOGETHER.

Opposition to the proposal relied on elevating the essential fabric of the post office to sanctity. It was asserted that the removal of two panels of stone veneer would harm the old building in an unacceptable way. The appeal to sanctity had all the problems of faith, in that it was basically inexplicable and, hence, unarguable. As important, it betrayed its own misunderstanding of architecture as an art of particular pictures and, therefore, something hard to change and prone to pastiche.

Architecture, of course, is something much more robust and important, an art of buildings with logic that succeed only as they integrate what they do and what they say about their functions, their makers, and their times in ways that make sense.

The architecture of additions is a pendant art that deals directly with what happens next, the inescapable passage of time and the equally inescapable evolution of logic. Additions are collaborations across time that embrace change and put the old and the new in service together in the logic of new times, illuminating the present in the way the old and new especially can when they serve together.

Designs for realists

Therein lies a large part of the pleasures of the Reichstag and, possibly, the new Penn Station. There is a wonderful depth and realism about the Reichstag that only such a combination of old and new could have, with its display of understandings about government, Germany, our century—our burdens and our possibilities—brought together and rebalanced as a basis for a nation's new start.

Its hearty, hopeful view of architecture and what it contributes is a tonic for the struggle to design new parts for old buildings in accordance with the realities of time, change, and difference—and without hiding these realities, but instead facing them head-on. This lesson about the design of additions is finding a home, as is made plain by the new Penn Station proposal, where a vigorous view of contemporary architecture and a good existing building may together be generating a solution of stature and usefulness to a hard problem, bringing new excitement—and even a measure of redemption—to New York City. ■

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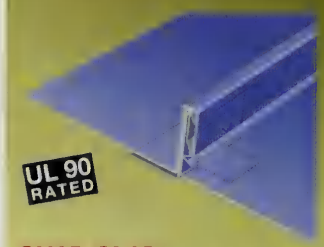
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CIRCLE 14 ON INQUIRY CARD

Smart contracts give clients several ways to pay

Practice Matters

By Elizabeth Harrison Kubany

A little creativity can go a long way in crafting a contract. Most architects use more than one compensation method, depending on the project, to improve profitability and manage risks, such as a fixed fee for one commission and a percentage of construction cost for another. But potential risks and rewards can vary, not just from project to project, but from phase to phase within a single project. "So, architects can apply this same principle of contract negotiation to individual agreements," suggests Michael Strogoff, AIA, a Mill Valley, Calif.-based negotiations consultant.

While architects currently have at least 11 ways to determine compensation (see sidebar) at their disposal, most practitioners opt for some variation of three tried-and-true methods. The *1997 AIA Firm Survey Report* found that, during 1996, most firms' contracts used some variation of either fixed-fee, hourly rate, or percentage-of-construction-cost methods.

Differing perspectives

Architects and clients often have different sets of criteria for evaluating contracts. Lump sum agreements, for instance, are simple from an accounting standpoint (for both the owner and the architect) but can be risky for the architect if the scope of work is not well defined at the outset of a project, as is frequently the case. Some architects prefer the percentage-of-construction-cost method because the fee usually reflects the final scope of work; others, however, are leery of tying their profit to a volatile bid market. Owners sometimes feel that it can be difficult, with the percentage-of-construction-cost method, to trust the architect's motivation for making certain decisions, such as specifying more expensive materials. Hourly fees allow for flexibility but are viewed by some clients as being too open-ended and prone to abuse. Another common complaint about hourly fees is that they don't let architects benefit from their expertise and efficiencies because the architect is not rewarded if the job is completed unusually quickly.

"Mixing compensation types can resolve these differences," says Strogoff. For phases where the scope of work is unknown or unclear—such as fund-raising presentations or the early phases of design with a new client—architects can ask for an hourly rate with a stipulated maximum. For tasks that are more easily quantifiable, the client and architect can choose a lump sum, percentage of construction cost, or unit cost. "Converting compensation methods at a predetermined milestone can align objectives and mitigate risk for both parties," says Strogoff.

Protecting the bottom line

William S. Harris, AIA, of Signer Harris Architects in Boston gives an example: "We were once asked to do a portion of a project in a wetland. We thought we might have to jump through hoops to get the necessary approvals but weren't exactly sure what the process would involve. So we used an hourly rate with a predetermined maximum for this part of the project. If we hadn't done this, we would have lost money."

Strogoff, who was recently involved in a negotiation for a series of large school projects in northern California, cites another example. In this case, he says, "mixing compensation methods provided the client with tremendous flexibility while eliminating much of the A/E team's risk."

A sample contract

The contract was structured as follows: The programming phase, where the scope was easily defined, was based on a fixed fee with lump sum adjustments for additional presentations to the school's oversight committee. Here, the A/E team benefited from its efficiencies while the school district was able to budget specific funds for a known scope. More open-ended predesign services, such as investigating existing conditions, were paid on an hourly basis. Design services were primarily based on a percentage of construction cost. To reduce the risk associated with a volatile bidding market for both the client and the architect, however, the percentage of construction cost was transformed to a lump sum at the end of the design development phase based on the adjusted construction budget. This predetermined fee let the client and the architect work closely during the construction documents phase to look for ways to reduce construction costs without diminishing the architect's fee. The construction administration phase, during which architects often lose money because of differences in contractors' methods and skills, was assessed based on a lump sum per site visit and on an hourly basis for other CA services.

This example may seem dauntingly complex, but according to Strogoff, it took only the time needed to go through the different tasks with the client and discuss the issues.

Choosing the correct combination of compensation methods can maximize the architect's profit and lower costs while balancing risk for both parties. It is often left to the architect to explain to the client how mixing methods can benefit the client, but the result is worth the effort. As Strogoff says, "Architects lose valuable opportunities when they base project fees on only one compensation method." ■

AN ARRAY OF CHOICES

The 11 compensation methods that architects can use today follow: predetermined measures such as lump sum, percentage of construction costs, and unit costs; time- and cost-based methods such as hourly or daily, multiple of costs, multiple of costs plus profit, multiple of subconsultants' billings, and retainer; and incentive-based methods such as royalty, equity position, and incentive bonuses and/or penalties.

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CIRCLE 15 ON INQUIRY CARD

Snapshot



By Soren Larson

Aliens make landing atop cricket field stands

Seen out of its context, it might appear to be the deck of a spaceship, a giant blue-and-white alien egg, or a looming electronic eye. But this futuristic, oblong object is no creature from a science-fiction story. The reality is far more mundane: up to 250 journalists gather inside it regularly to report on the latest matches at the cricket field in London.

Still, its utilitarian function doesn't take away from the startling impact of the NatWest Media Centre, designed by Future Systems, the architectural practice run by Czech-born Jan Kaplicky and his partner, Amanda Levete. The structure, basically a press box, perches dramatically above the field, housing journalists and giving them the best sightlines possible.

The media center is Future Systems' first public commission and its most substantial completed building to date (most of the firm's executed designs have been for shops or houses, including a house built into the side

of the hill and covered with grass in Wales). The new building has already earned accolades, receiving, in November, the Stirling Prize, Britain's most prestigious architectural honor.

The media center is a semimonocoque design—its seamless, white-painted aluminum outer skin is an integral part of the structure and absorbs much of the stress on the building. The design technique lets the building be physically light and the free-flowing internal space column-free. The technology is also daring enough that most local construction companies declined to take the contract. The building was eventually made in sections in boatyards in Holland and Cornwall, as overseen by the architects and the engineers, Ove Arup, and then transported to the site at Lord's.

The prefabrication was supposed to speed up the building process, but instead caused delays when a spate of bad weather made welding the sections together difficult. The complex construction and the extended installation period almost doubled the cost, from around $5 million to more than $9 million. Despite the initial difficulties, the journalists who use the media center have given it favorable reports. And the structure's presence at the top of the stands adds an enigmatic counterpoint to the methodical motions of the cricket players who roam the field below. ■



The media center had to be prefabricated in shipyards and cost over $9 million to construct and install.



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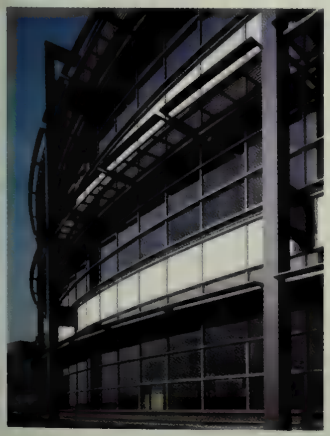
Record News

LEGORRETA TAKES AIA GOLD MEDAL TO MEXICO; GENSLER IS NAMED FIRM OF THE YEAR





Ricardo Legorreta, HON. FAIA (above), whose incorporation of indigenous Mexican culture in his designs has led to an array of colorful buildings around the world, was named the 2000 AIA Gold Medalist in December. The AIA also gave Gensler the 2000 AIA Architecture Firm Award.



The AIA said Legorreta's architecture "is attuned to the land and climate and respectful of Latin American traditions for privacy and simplicity. He has interpreted and magnified this style to earn it universal appeal. His mastery . . . has led to buildings that demonstrate an uncanny understanding of color and light." Legorreta says winning the award "is beyond my dreams. It's very important for me and also for Mexico to have that recognition."

Born in 1931 in Mexico City, he formed Legorreta Arquitectos in 1959. Early important buildings included the Camino Real Hotel in Cancun and Mexican offices for IBM. His first important commission outside of Mexico was a house for actor Ricardo Montalban. Current commissions include the Mexican Museum in San Francisco, a Hispanic center in Dallas, and the Bank of Finance in Managua, Nicaragua. Legorreta recently completed the Tech Museum of Innovation in San Jose, Calif. (top), and is excited about a hotel he is designing in Bilbao, Spain, near the Guggenheim Museum designed by Frank Gehry, FAIA, last year's Gold Medal winner. "I've tried to create an architecture that is truly human—I always think of the people that will be using it," Legorreta says. "The use of color and light is for that objective."

Gensler, founded by Art Gensler, FAIA, has grown from a three-person office in 1965 into the world's largest architecture firm: 16 offices, 1,700 employees, and 1,200 active clients. The firm pioneered in integration of the design of buildings and their interiors (bottom left, Armstrong World Industries in Lancaster, Pa.).

The honorees will receive their awards at the 2000 Accent on Architecture ceremony on January 28 in Washington, D.C.

Soren Larson

SAFETY AND OPENNESS: AN ONGOING BATTLE FOR BALANCE

The growing portfolio of new federal courthouses, embassies, and office buildings—designed in the post-Oklahoma City bombing era—represents the next generation of security in public architecture. But will Americans—and the design community—accept concrete bollards and metal detectors as permanent federal fixtures? That was the topic of "Building Security & Openness," a late-November symposium sponsored by the Department of State, the General Services Administration (GSA), and the AIA. Over 500 architects and high-ranking federal officials came to the Ronald Reagan International Trade Center in Washington, D.C., for the event.

"The rise of terrorism is not new but must not consume us," said keynote speaker Sen. Daniel Patrick Moynihan (D–N.Y.). "We are the arbiters of what is happening in the world." At the 1999 GSA Design Awards, Moynihan called for both security and openness in federal buildings, prompting a national conversation to explore practical design solutions for enhanced access to public buildings.

Bonnie Cohen, undersecretary of state, and Robert Peck, commissioner of public building service at the GSA, comoderated the program. "Federal buildings promote the U.S. contribution to the world and project American values and our best hopes, not our best fears," said Cohen.

Although acts of terrorism have decreased in the 1990s, the number of people killed or hurt has increased, said Jim Rice, representing the FBI's Domestic Terrorist Program. "It's difficult to protect against a lone individual," Rice noted. But Gavin de Becker, author of *The Gift of Fear*, warned against being governed by fear and suggested turning off the evening news. Architects should consider what buildings say about our times and how to achieve a balance between enhanced security and protecting buildings whose loss would be critical to society: "Timothy McVeigh should not be the designer of federal buildings for the 21st century."

Peck called for better intelligence and coordination among federal agencies, improved training for contract guards, and performance specifications in security guidelines. He also said discussion is needed on plaza design, vehicular access, and parking policies. AIA President Michael Stanton, FAIA, noted that, in addition to security criteria, federal buildings must reinforce communities and existing neighborhoods and should be energy efficient. Above all, Stanton emphasized, federal buildings should be open and inviting, symbolizing the interaction between citizens and their government and reflecting our democratic values. *Barbara A. Nadel, AIA*

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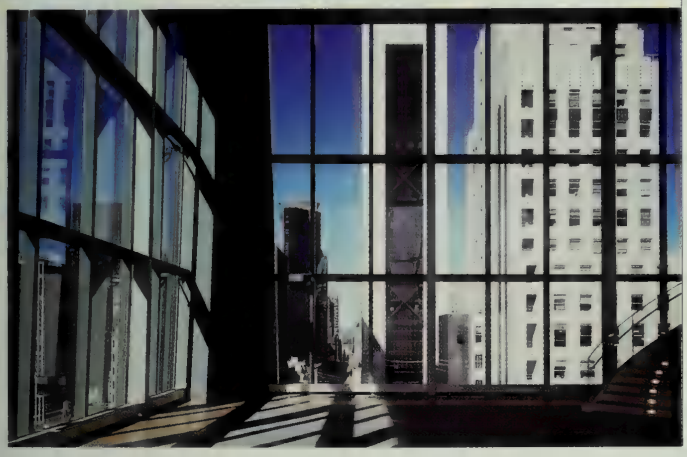
CIRCLE 18 ON INQUIRY CARD

PORTZAMPARC'S TOWER ADDS SPARKLE TO NYC

At long last, the LVMH Tower in Manhattan, the subject of much debate and speculation as it haltingly rose on 57th Street, is up and running. Bernard Arnault, chairman of the French champagne and luxury goods conglomerate, hosted a star-studded bash in December to show off the striking new headquarters, designed by French architect and 1994 Pritzker Prize winner Christian de Portzamparc, with the Hillier Group.

The building didn't arrive unscathed. Zoning rules made the design process arduous, and cost overruns and litigation caused delays. Now, however, the midtown skyline has an unusual addition. The 24-story structure, which features a combination of curtain walls with four different types of glass, creates a prism effect with angled mirror panels that either reflect light or create shadowy facets. Topping it off is the "magic room" (below left), used for special events. *S. L.*





THE EDEN ROC, AN ICON OF MIAMI BEACH GLAMOUR, GOES BACK IN TIME WITH A FULL RENOVATION

When he was hired to design the Eden Roc Hotel in the mid-1950s, architect Morris Lapidus was asked by the owner to create something that looked Italian Renaissance. Lapidus complied in his own unique fashion, creating a hotel more Florida than Florence.

In the ensuing four decades, the Eden Roc Hotel became an icon of the Miami Beach of the postwar era. Lucy and Ricky and Fred and Ethel checked in (actually on a soundstage version) during a vacation episode. The hotel became a favorite haunt of the Rat Pack. Along with its next door neighbor, the Fontainebleau (also designed by Lapidus as an ode to the French Baroque), the Eden Roc epitomized Miami Beach's celebrity and lavish excess.

The years were not kind to the Eden Roc, though; each successive owner obscured more of the hotel's signature elements, and Lapidus' embellishments disappeared. Now, the Eden Roc has returned to the look of its glory days. A $24 million renovation has brought, both literally and figuratively, Lapidus back into the lobby as a consultant to Spillis Candela DMJM, the project's renovation architects. Lapidus' memory proved invaluable, because the original drawings and plans had long since vanished. Spillis partner Julio Grabiel, AIA, says the architects ended up looking at hours of old television footage and family movies



to capture the original design, because "the Eden Roc was the place to go for Miami and Miami Beach for weddings, bar mitzvahs, baptisms."

Primarily, says Grabiel, the process was one of stripping away. The architects revealed the original mezzanine and removed a concrete baluster on Lapidus' famed floating staircase, allowing once again for grand entrances into the vast lobby. Fluted rosewood columns that dominate the lobby were stripped of layers of white paint; ornately patterned terrazzo floors were uncovered. Additions were made "to respect and recall what was there or what the intent had been," says Grabiel. In the 1950s, local laws prohibited lobby bars in plain view, so the bar was tucked away on the mezzanine; now it is where the architect originally wanted it. The verdict from Lapidus: he likes the hotel as much as ever.

Beth Dunlop

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CIRCLE 19 ON INQUIRY CARD

GSA SUFFERS, PRISONS AND EMBASSIES GAIN

Congress was tough on most federal building programs when it approved fiscal 2000 spending bills late last year. Many agency budgets, including the General Services Administration's (GSA) and the Department of Veterans Affairs' (VA), were cut from fiscal 1999 levels. Only the federal Bureau of Prisons and military construction accounts won increases. Even with the cutbacks, hundreds of millions of dollars will go into buildings, but for the coming year, it looks like funds for design will be limited.

The GSA took the biggest hit, seeing its new construction account slashed 85 percent to $75 million and its repairs-and-alterations program pared 10 percent to $599 million. The construction account includes design funds for a new Food and Drug Administration complex in Silver Spring, Md. But the GSA has no money for new courthouses, despite a federal judge's request to include $579 million for 17 projects.

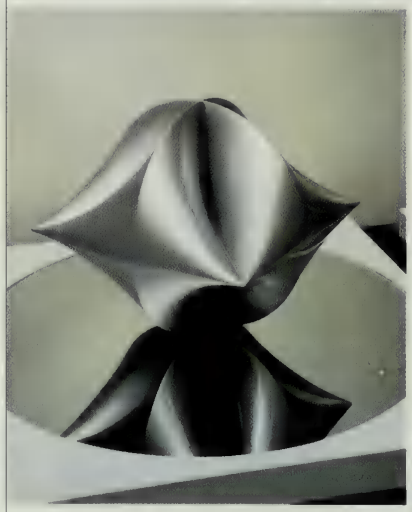
The VA's major construction account was chopped 54 percent to $65 million. Robert Neary, the VA's associate facilities management officer, says the account includes $2 million for the department's design fund, which will be used for projects that the VA hopes will win construction funding in the 2001 budget.

Safety first

Jim Dinegar, the AIA's chief operating officer, says construction funds "generally go to security." That includes the State Department, which will receive $742 million in 2000 for security and maintenance of overseas posts. The figure is down from last year's $1 billion, but the 1999 total included $627 million in emergency supplemental spending, approved in the wake of terrorist bombings in Africa. The embassy funds will largely go to constructing projects already in design; the only new project will be an embassy in Abu Dhabi.

Meanwhile, the Bureau of Prisons will get $557 million, up 36 percent from last year. Scott Higgins, the agency's chief of design and construction, says three prison projects—in West Virginia, South Carolina, and California—are out for design-build procurement, and planning funds are in place for three others. *Tom Ichniowski*

CALATRAVA WINS TIMES CAPSULE COMPETITION WITH A STEEL DESIGN BASED ON FOLDED SPHERES

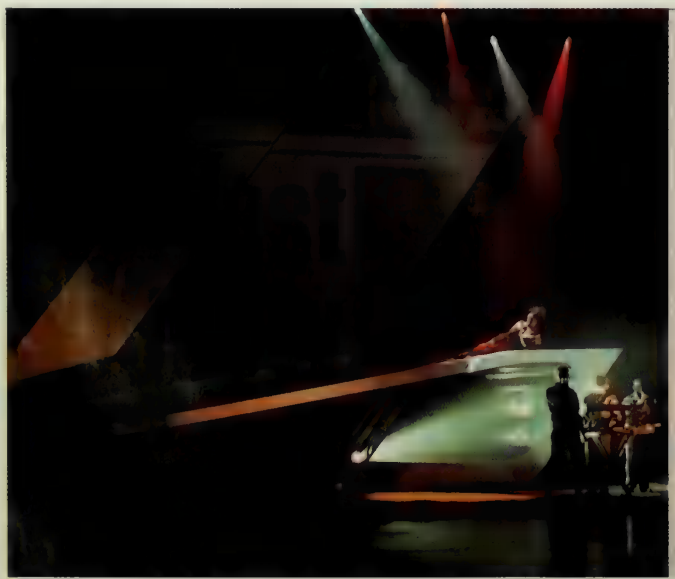


Among the many December events to commemorate the turn of the millennium, the *New York Times* might have topped the list with regard to high-design concepts. After a lengthy competition process, the newspaper chose Spanish architect Santiago Calatrava's design (above) to hold the New York Times Capsule, a collection of contemporary objects and artifacts slated to be opened in 3000.

Calatrava's design is based on a series of his sculptures that explore the formal properties of folded spheres. The module, which looks somewhat like a piece of origami, can be opened in segments that contain a total of 50 cubic feet of storage. The five-foot-high capsule is made of stainless steel, weighs 2 tons, and cost $60,000 to make.

Another proposal by the Ocean Group (designers from Finland, Norway, and Germany who practice in cyberspace) was to place capsules on the Antarctic ice shelf, where they would eventually be released into the oceans because of global warming. Architect Maya Lin suggested burying the capsule among trees planted to represent mathematical forms found in classical architecture and nature.

Calatrava's capsule will contain objects selected by residents of the U.S., India, France, Zimbabwe, and Brazil. The winning design and the other competitors' ideas will be displayed at the American Museum of Natural History in New York City through March 26. At the close of the exhibition, the capsule will be sealed for permanent display at the museum. *S. L.*



ZAHA ROCKS **Move over Robert Wilson and Philip Glass. London architect Zaha Hadid's set for the current tour of British group the Pet Shop Boys shows that architecture can work on a pop level as powerfully as it does with avant-garde opera. From the razzle-dazzle opening of Neil Tennant and Chris Lowe's "Night Life" concert—with its flashing lights, video projections, and thumping house music (English art-house, you might say)—Hadid's set is integral to the action. Electronica thrives on such "architectonica."**

The set is a zig-zagged, continuous plane with a three-dimensional base and ramp structure and a two-dimensional screen jutting at an angle into the air. Looking like a fragment of one of Hadid's building designs, the evanescent, geometrical landscape becomes a spatially dynamic platform, particularly when the backup band's Sylvia Mason-James descends it like a latter-day Valkyrie. A portion of the painted base rolls away in the second half of the concert, revealing a metal mesh enclosure for the lighting and fog machine. The construction is "run of the mill," reports project architect Oliver Domeisen: an aluminum frame with plywood cladding is covered with white rubbery flooring and draped with stretched jersey. And it travels well; it can be easily flat-packed for the five-month tour, which began in October. ***Suzanne Stephens***


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GRIFFITH OBSERVATORY PLAYS STARRING ROLE

Griffith Observatory, a landmark of the Hollywood Hills since 1935, is undergoing a $58 million renovation and expansion that should cement its position as one of the leading cultural attractions in Los Angeles. Hardy Holzman Pfeiffer Associates, with Levin and Associates, is enlarging the Art Deco building—which houses a planetarium, science museum, and several powerful solar telescopes—by 35,000 square feet, almost doubling its size. Concurrently, conservation efforts will refurbish valuable murals depicting scenes from celestial mythology.

As host to 2 million annual visitors, including more than 50,000 schoolchildren, Griffith Observatory is a leading site for public education and astronomical observation. Its expansion and renovation will create a world-class planetarium within the existing domed shell. New exhibit areas also will be added, along with classrooms, a multimedia auditorium, a large shop, and a public cafe.

Most of the construction, scheduled to begin in 2001, will take place beneath the existing building's front lawn. The underground area will house all the new elements except the cafe, which will hug the hillside and offer spectacular views of the Pacific Ocean and the iconic Hollywood sign. The new planetarium will be aligned with the new underground multimedia auditorium and will connect to it by a series of descending multilevel exhibit halls. The revamped observatory will contribute significantly to the ongoing cultural and constitutional growth of the City of Angels. *Alice Y. Kimm, AIA*





HUGE FERRIS WHEEL ON THE THAMES PROVIDES VIEWS OF LONDON AND A MILLENNIUM MARKER

London's giant new Millennium Wheel, dubbed the "London Eye" by its backer, British Airways, and its operator, Tussaud's, is battling for the spotlight with the Millennium Dome, down the river in Greenwich.

Constructed over six months in a horizontal position on a platform in the Thames, the wheel is dramatically sited almost directly opposite the Houses of Parliament, dominating London's lowrise skyline. Its supporters declare it a fitting and celebratory symbol for the millennium that offers spectacular views over the city, while its detractors say a carnival ride is inappropriate opposite Westminster. Regardless of opinion, the wheel is remarkable in many ways: it is the largest observation wheel ever built and will carry 800 passengers at full capacity in 32 enclosed capsules. The 440-foot-high structure weighs 2,300 tons and is supported on one side only, by an A-frame structure composed of two tapered-steel columns with a maximum diameter of 10 feet. Pretensioned cables are also strategically used for support.

The wheel was the brainchild of David Marks/Julia Barfield Architects, husband and wife practitioners who won a 1993 competition for a millennium landmark. The architects not only had to help secure backing for the project, but navigate through planning permits and other procedures. Now they hope their wheel will continue to turn into the next century. *Hattie Hartman*

AFTER A RESTORATION, MUSIC IS HEARD AGAIN AT CLEVELAND'S MUCH-LAUDED SEVERANCE HALL

Severance Hall, the permanent home of the Cleveland Orchestra, has been one of that city's most treasured landmarks since it opened in 1931. The hall, designed by then-prominent Cleveland architecture firm Walker & Weeks, was named after John Long Severance, a treasurer of the Standard Oil Company, and his wife Elizabeth, who died just after her husband announced his initial gift of $1 million. The building has neoclassical and Georgian facades and a varied (which is not to say eclectic) interior that embraces Art Deco, French Nouveau, and Egyptian Revival styles, as well as classicism and modernism.

The hall, with its splendid interiors and superb, intimate acoustics, has always been regarded as an integral part in the success of what is widely thought of as one of the world's finest orchestras, led by a stream of superb conductors. Over the years, however, a back entrance to an underground garage had supplanted the more formal front arrival point, with its grand portico. Below that, a porte-cochere drop-off for chauffeured cars was filled in to accommodate a variety of uses, including a restaurant, while concertgoers came in through the back, squeezing through narrow halls. In the concert halls themselves, a 1958 renovation had sealed off the 6,025-pipe E. M. Skinner organ, which has not been heard for more than 40 years; at the same time, a musically sound but architecturally compromised orchestra shell had been installed.

This month, after being closed since last March, Severance Hall reopens to unveil a $36 million renovation designed by Washington, D.C., architect David M. Schwarz. The restaurant was relocated and the building's two auditoriums, lobby spaces, and grand foyer have been restored, bringing new life to such remarkable architectural elements as the elaborate lace-patterned ceiling in the concert hall. Schwarz designed a 39,000-square-foot addition for the back of the building that will provide much-needed office and meeting space and better access for concertgoers. The Skinner organ also will be restored, though that will take an additional year. *Beth Dunlop*



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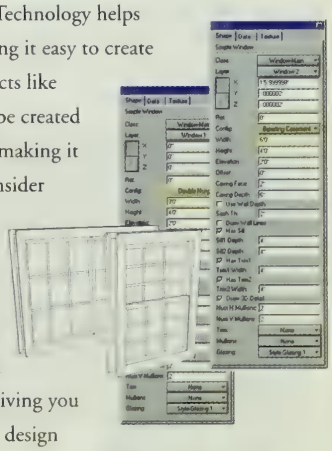
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CIRCLE 21 ON INQUIRY CARD

SUBTLETY REIGNS AT MADRID MUSEUMS

Sobriety and discretion won out over spectacular design statements in two recent major museum competitions in Madrid, breaking the trend set by Frank Gehry, FAIA's Guggenheim Museum in Bilbao and seconded in August by Peter Eisenman, FAIA's winning design for a "city of culture" in Santiago de Compostela.



A competition to enlarge the Reina Sofía Museum of Contemporary Art was won by Jean Nouvel with a design (below left) that neatly conforms to the streets and building heights of its surroundings. Second prize was awarded to Dominique Perrault and third prize to Madrid architect Juan Navarro.

Since 1986 the Reina Sofía Museum has been housed in a monumental hospital, designed by royal architect Francisco Sabatini in 1756. The 172,000-square-foot addition will contain temporary exhibition spaces, a library, auditorium, restaurant, offices, and technical spaces, freeing space in the original building for the permanent collections. Turning its back on Sabatini's structure, Nouvel's scheme establishes a new entrance on a busy boulevard, giving the museum a new identity. Nouvel has arranged three pavilions under a continuous floating copper roof in a composition that recalls his recent performing arts complex in Lucerne, Switzerland.



The second competition, to build a museum for the Royal Collections, was awarded to the project that the jury felt best respected its sensitive site: a plaza between the 18th-century Royal Palace (also designed by Sabatini) and Madrid's eclectic 20th-century cathedral, which occupy a high escarpment with panoramic views. The Duke of San Carlos, head of the jury, says the site did not permit "audacious solutions. Underground audaciousness was permissible, but not audaciousness in the air."

The winners were the young Madrid architects Lucia, Alfonso, Gonzalo and Diego Cano, a sister-brothers team who have taken over the architecture studio of their late father, Julio Cano Lasso. Their Museum of the Royal Collections (above) will be largely



CIRCLE 22 ON INQUIRY CARD

underground, with a facade of granite latticework at the level of the palace's foundations and a minimalist horizontal canopy on the plaza marking the entry. The 375,000-square-foot facility will display art, decorative and liturgical objects, carriages, musical instruments, and a remarkable collection of 3,000 tapestries, all former royal property now in the care of Spain's National Patrimony.

Other museum projects under way in Madrid include Rafael Moneo's plans to enlarge the Prado Museum, currently in design development, and an upcoming expansion of the nearby Thyssen Museum, which Moneo installed in a 17th-century palace in 1992. The state has acquired two adjacent historic structures and shortly will organize a competition for their rehabilitation. *David Cohn*



SEATTLE HOSTS AN ARCHITECTURE WEEK TO BOOST COMMUNITY AWARENESS AND PARTICIPATION

"Like other young cities," says Donald Carlson, FAIA, president of AIA Seattle, "we are still learning about the value of an urban environment for people. But architects can't transform cities without public participation, so once a year we bring everyone together to celebrate." In November, Seattle did just that with an Architecture Week that honored both professional accomplishments and community participation.

Highlighting the 12-day event was the 1999 Honor Awards for Washington Architecture. Top honors went to Weinstein Copeland Architects, whose West Police Precinct and Communications Center in Seattle (above), designed in association with Roth Sheppard, merged conflicting needs for security and neighborhood accessibility in what the jury called "a humane and rich architectural statement."

Another highlight was a well-attended seminar, "How to Select and Work with an Architect." AIA members Elizabeth Manger and Martin Moberg spoke to would-be homebuilders in an attempt to demystify design and architect/client collaboration.

Some events, including open houses for high school students at downtown firms, were directed at tomorrow's architects. Elizabeth Leroy of Bassetti Architects says that along with inspiring the students, the experience familiarized parents with architect/community collaborations, making them better potential participants. Younger kids had their say in a program directed by Dr. Sharon Sutton, FAIA, director of the University of Washington's Center for Environment, Education, and Design Studies. Elementary and middle school students presented their views on neighborhood problems to city council member Peter Steinbrueck, AIA. Notes Sutton: "Children are astute observers of their surroundings, and here they are practicing democracy through urban design." *B.J. Novitski*

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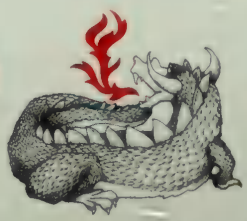


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TASK FORCE MOVES ON INTERNSHIP REFORM

A task force charged with reforming internship continues to inch toward a new model of professional development. The future may bring more options for integrating practical experience during school, increased support for interns in the office, the right to take part of the registration exam immediately after graduation, and more refined, less demeaning titles to replace the word "intern."

The current drive to address the ills of internship and make a more seamless connection between education and practice began in earnest last April at an internship "summit" consisting of 66 delegates representing U.S. and Canadian architecture students, interns, recently licensed architects, accrediting and regulatory bodies, practitioners, and educators. The summit arrived at a rough outline for a possible new model of internship, including a set of cautiously worded proposals aimed at sparking wider discussion.

The Collateral Internship Task Force, created by the Five Presidents Council to sharpen the summit's concepts, held its first meeting in October and developed seven more refined objectives for improving internship. In December, Billy Herrin, a partner in Jones & Herrin-Architecture/Interior Design in Huntsville, Ala, and chairman of the task force, presented those objectives to a meeting of the presidents council, which endorsed the task force's work-to-date.

The seven proposed objectives:

- Integrating practice into education as early as possible and recognizing multiple avenues of education and experiences.
- Requiring all candidates for architectural registration to have a degree from an accredited school, but allowing flexibility for exceptional individuals who have gained the necessary knowledge through other, nonacademic experiences.
- Greater recognition of alternative and nontraditional means of gaining practical experience as interns.
- A more supportive environment for young architects in the practice world.
- Unbundling the Architect Registration Examination into two parts: an education-based Part A that could be taken after graduation from an accredited school and a practice-based Part B, taken after acquiring the necessary experience.
- A set of new, more descriptive titles to replace the word intern. Those in school would remain "architecture students." Graduates of an accredited program would be entitled to "graduate Architect." Those passing Part A of the registration exam would be "architects-in-training."

Those who pass Part B would be architects, as is now the case.

- Create a culture of lifelong learning and mentorship throughout the professional development process, from school into continuing education.

"These objectives are only the first parts of a schematic design," says Herrin, adding that architects "should continue to give their comments to their representatives in the collateral groups."

Thus far, task force participants, including interns, have praised the progress in gathering feedback and developing the rough outlines of a more seamless system of professional education that bridges schools and practice. The task force could face its first test next October at the National Architectural Accrediting Board's validation conference, when the NAAB will consider whether any of the accreditation criteria for architecture schools need reconsideration in light of the proposed objectives for improving internship.

Lee D. Mitgang

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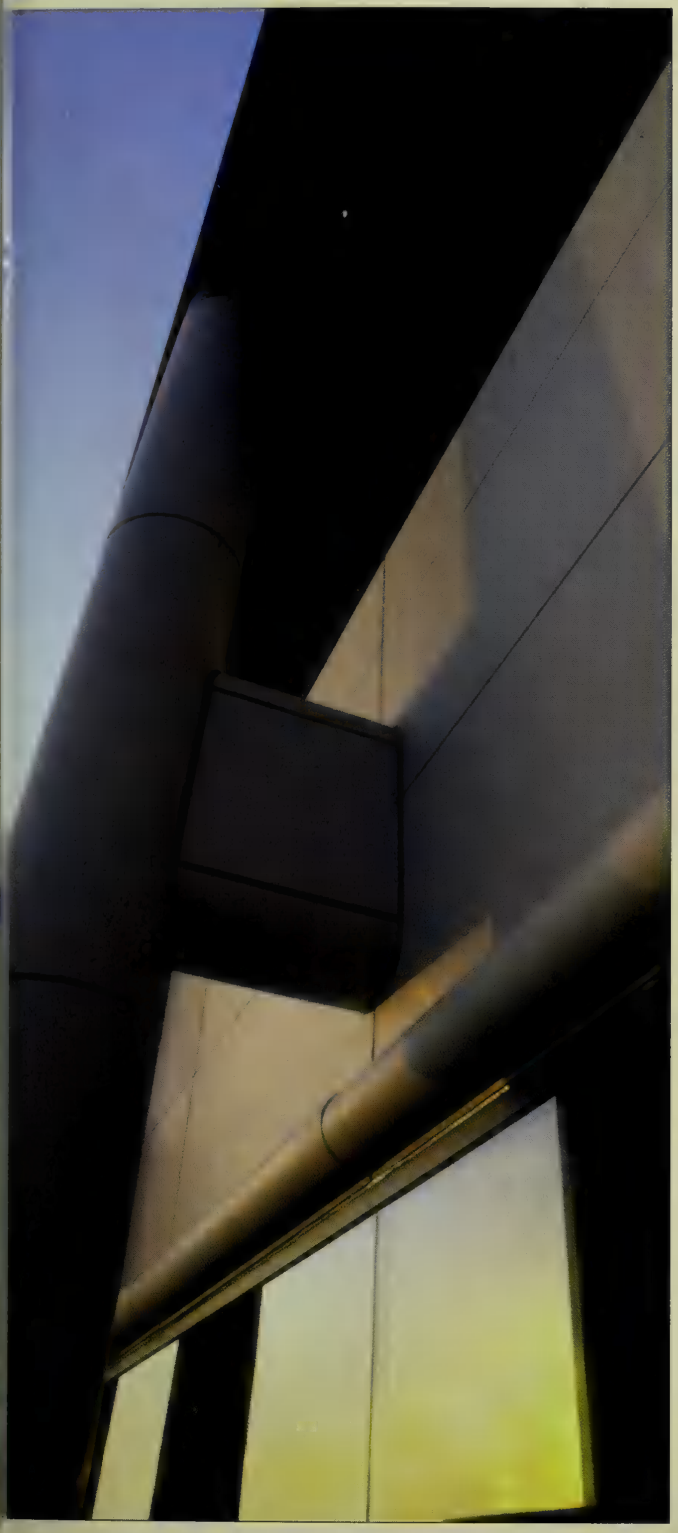
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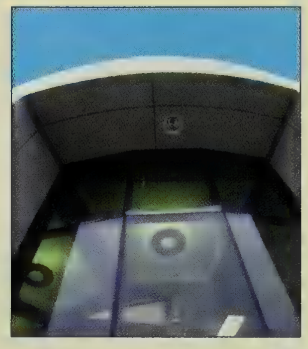
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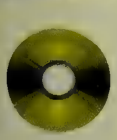
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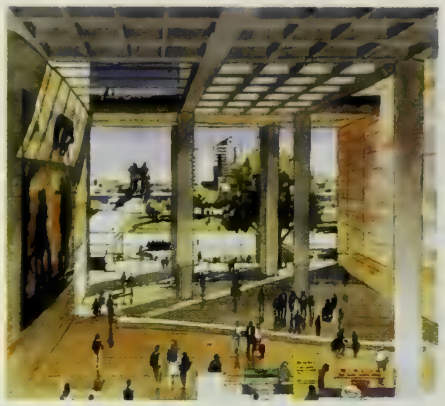
CIRCLE 25 ON INQUIRY CARD

News Briefs

The saga continues In the wake of Swiss firm Herzog & De Meuron's resignation of its commission to design the new Jack S. Blanton Museum of Art at the University of Texas at Austin [December 1999, page 67] and the subsequent protest resignation of the school's dean of architecture, Lawrence Speck, FAIA, the University of Texas regents are under fire. Local critics and architects are blaming the regents for the debacle and are saying the regents overstepped their bounds in trying to dictate the museum's design (Herzog & De Meuron had to go back to the drawing board several times before giving up). But one regent, Tony Sanchez, said in the *Austin American Statesman* that the proposed designs didn't fit into the university's master plan, which was created by Cesar Pelli, FAIA. Blanton is not withdrawing his funding of the project and the regents say they will find another architect. Meanwhile, Austin won't lack new museums: Gluckman Mayner has completed an initial design of the new Austin Museum of Art, scheduled for completion in 2002.

Happy birthday Shepley Bulfinch Richardson and Abbott of Boston celebrated its 125th year of practice in December with a forum at the JFK Library called "Envisioning Possibility." Civic leaders and academic and health care executives discussed the role of community participation in design and development. The firm, founded in 1874 by H. H. Richardson, also took the opportunity to fete itself as the oldest continuously practicing architecture firm in Boston and one of the oldest in the country.

Primitive Paris French architect Jean Nouvel has been chosen by French president Jacques Chirac to design a Museum of Primitive Arts near the Eiffel Tower in Paris. The $190 million museum will exhibit African, Oceanian, and pre-Columbian art and is slated to open in 2004. Nouvel won out over two other finalists, Renzo Piano and the French-American team of Felice Fanuele and Peter Eisenman, FAIA. Nouvel, 54, has already made his mark in Paris with the Institut du Monde Arabe and the Cartier Foundation for Contemporary Art and is reportedly at work on a major project in Frankfurt, Germany.



Boora's Underground Railroad Freedom Center.

PHOTOGRAPHY: © BOORA ARCHITECTS

Going underground Boora Architects of Portland, Ore., has completed a design of the new National Underground Railroad Freedom Center in Cincinnati. The 150,000-square-foot museum will house exhibits on the history of the underground railroad as well as other educational and research facilities. When completed in 2003, the building will be one of the showpieces of Cincinnati's redeveloped riverfront district.

Disney digs in Another groundbreaking ceremony for Disney Hall, designed by Frank Gehry, FAIA, took place in downtown Los Angeles in December. Seven years after the first such event, the ceremony was attended by a host of supporters,



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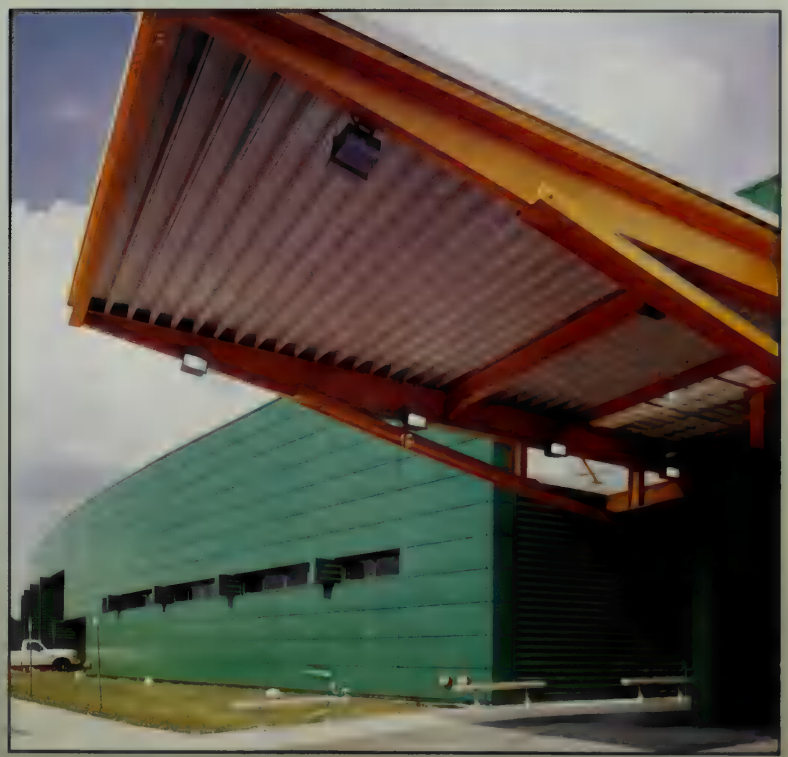
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CIRCLE 28 ON INQUIRY CARD

News Briefs

including Mayor Riordan, members of the Disney family, and the future occupants of the 2,290-seat concert hall, the Los Angeles Philharmonic. Gehry's 1988 design envisions an exterior covered with wavelike stainless steel. "I want it to be reflective enough so in our California sun, during the day, it goes almost white, like white sails," said the architect. The $274 million project, in limbo since construction was halted in 1995, will supposedly be finished in 2003.

Recipe for Frankfurt TrizecHahn Europe, a subsidiary of the Toronto-based real estate development giant, has cleared the site of a former freight station near downtown Frankfurt to make way for a 2.9 million-square-foot mixed-used development. Construction of the $1.2 billion urban entertainment center ($720 million from Trizec and the rest from landowner Eisenbahnimmobilien Management GmbH, a German railway company) is scheduled to be completed in 2002. While Trizec would not reveal the architects involved in the project, sources indicate that Jean Nouvel, Helmut Jahn, FAIA, Christian de Portzamparc, and Peter Pran, AIA, of NBBJ are working on designs. The development will include a hotel, a 1,800-seat theater, a multiplex cinema, restaurants, retail space, office space, apartments, and a conference center. The master plan is by ABB Architekten of Frankfurt. The local government has approved the project in principle and will have a say in the final designs.

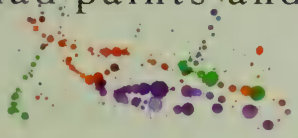
Pelli's progress Cesar Pelli, FAIA, is designing a "music performance laboratory"—an intimate performance and practice space—for the University of Minnesota-Duluth, whose music facilities have been derided as the worst of any college in the state. The 19,000-square-foot building will feature a domed top and long, narrow skylight. Pelli is now also participating in a new $300 million master plan at St. John's University in New York, where he is designing an octagonal, 525-seat, limestone-clad church that will be the campus' focal point.

Canadian style Montreal's Economic and Urban Development department has been enjoying strong interest in its Commerce Design Contest, which has honored excellence in commercial design since 1995. The 1999 competition attracted 7,000 ballots, double the 1998 input. The Orbite Coupe salon, designed by Gilles Saucier, won the jury grand prize.

Living large UCLA held a groundbreaking last month of a new $1.3 billion hospital and research complex that will be the largest construction project ever undertaken by the University of California. The Pei Partnership, owned by two sons of I.M. Pei, FAIA, created the design in consultation with the elder Pei and executive architects Perkins & Will. The three-year planning process involved more than 500 physicians, nurses, and patients.

Wembley woes The prospects for a design by Lord Norman Foster and HOK Lobb for the new $750 million Wembley Stadium in London were in doubt in December after an independent report by DLA Ellerbe Becket claimed the stadium, recently redesigned with a single leaning arch instead of the original four-mast roof structure, would be too small when converted for track and field events. The report further criticized the expense and time required to transform it from a soccer stadium. While the stadium is intended to be the national venue for soccer, government funding is contingent on its supporting the U.K.'s bid for the World Athletics Championships in 2005 and an expected bid for the 2012 Olympics. As of this writing, the consortium developing the stadium was preparing a response. ■

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GREAT PROJECTS: TALL AND SMALL

Simply click PROJECTS to contact the people and the product manufacturers involved with the projects in ARCHITECTURAL RECORD. **New this month:** Jin Mao, China's tallest tower; St. Martin's Lane Hotel (right); the Markow Residence; and the Institute for Forestry & Nature Research.



THE GREEN ARCHITECT

The green products guide is organized by division, with product descriptions and links to manufacturer Web sites. New "green" products are added each month. Products are evaluated for **durability, recycled content,** and other attributes—making it easier to choose products that are **resource efficient**. Find vital coverage of "green" issues, sustainable design, and newly built structures that respect the environment here.

DIGITAL ARCHITECT

Go here to find vendor guides and software reviews with links to manufacturer Web sites. **New this month:** database management system software vendors related to the January column, "Database Management Systems for Architects." You can also refer to past Digital Architect columns, digital product reviews, and related vendor guides.

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BUSINESS WEEK/ARCHITECTURAL RECORD AWARDS, sponsored by the AIA, honors the achievement of business goals through architecture and distinguished collaboration between clients and architects. To enter, access registration information in this issue or on architecturalrecord.com. Register by March 16, 2000. Submissions must be postmarked by April 18, 2000.



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The **people** and **products** involved in several delightful small museum projects from January's Building Types Study: The River & Rowing Museum, Chibougamau Mining Museum, North Carolina Pottery Center, and Roche Court (left).

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CIRCLE 31 ON INQUIRY CARD

Dates & Events

Calendar

Landmark American Bridges of the 21st Century
Boston
Through January 28
Documentation of the design and engineering of seven major American bridges currently under construction or in their final design phases. The Architects Building/BSA. 800/662-1235.

Edge City: Work by Steven Holl
San Francisco
Through February 20
On display are the architect's models, photo collages, and drawings visualizing the imposition of form on urban sprawl. San Francisco Museum of Modern Art. 415/357-4000.

Cedric Price: Mean Time
Montreal
Through February 27
On exhibition are the often humorous unbuilt projects of English architect Cedric Price, whose work explores how architecture can adapt itself to new uses over time. Projects include an abandoned railway line converted into a roving university and a demountable house for an archaeologist. Canadian Centre for Architecture. 514/939-7000.

The Pritzker Architecture Prize 1979–1999
Pittsburgh
Through February 27
An exhibition highlighting a single, signature project for each of the 22 Pritzker laureates. Carnegie Museum of Art. 412/622-5551.

Design from the Heartland
Chicago
Through February 27
An exhibition featuring the work of three pioneering industrial designers: Henry Glass (American Way furniture), John Polivka (equipment and graphics for Control Data Systems), and Richard Ten Eyck (Cessna aircraft and Vornado fans). The Art Institute of Chicago. 312/443-3600.

E.W. Godwin: Aesthetic Movement Architect and Designer
New York City
Through February 27
The first U.S. exhibition devoted to the work of this 19th-century British polymath; Godwin was an accomplished architect, designer, interior decorator, antiquary, theatrical producer, and critic. Bard Graduate Center for Studies in the Decorative Arts. 212/501-3072.

The Architect's Studio
Humlebæk, Denmark
Through February 27
The latest in a series of exhibitions featuring established architects focuses on the work of Danish architect Henning Larsen. Louisiana Museum of Modern Art. 011/45/49/19-07-19.

Material Evidence: Chicago Architecture at 2000
Chicago
Through March 5
Guest-curated by Cynthia Davidson, this exhibition investigates how the use of materials drives contemporary Chicago architecture. Featured architects include Ron Krueck, Obi Mwazota, Carol Ross Barney, and Joe Valerio. Also on display are commissioned installations by Sarah Dunn/Martin Felson, Studio Gang/O'Donnell, Doug Garofalo, and Helmut Jahn. Museum of Contemporary Art. 312/280-2660.

The Corner Store
Washington, D.C.
Through March 6
An exhibit tracing the history and cultural impact of a vanishing American typology: the local grocery. National Building Museum. 202/272-2448.

At the End of the Century: 100 Years of Architecture
Chicago
Through March 12
A traveling multimedia exhibition highlighting major trends in 20th-century architecture. Museum of Contemporary Art. 312/280-2660.

ModernStarts: Places
New York City
Through March 14
An exhibition demonstrating how particular spaces, real and imagined, urban and rural, were conceived and represented by artists between 1880 and 1920. Museum of Modern Art. 212/708-9750.

A Century of Design, Part I: 1900-1925
New York City
Through March 26
The first in a series of exhibitions surveying 20th-century design of furniture, metalwork, glass, ceramics, textiles, jewelry, and drawings. The Metropolitan Museum of Art. 212/535-7710.

Frank O. Gehry's Office
Bordeaux, France
Through April 2
An exhibition of Gehry projects focusing on his office's working methods. Arc en Rêve Centre d'Architecture. 011/33/5/56-52-78-36.

Triumphs of the Baroque
Montreal
Through April 9
An exhibition of European architecture from 1600-1750, highlighted by 30 large-scale architectural models. The Montreal Museum of Fine Arts. 514/285-1600.

En chantier: The Collections of the CCA, 1989-1999
Montreal
Through April 30
Celebrating its 10th anniversary, the CCA displays the best of its collection of architectural drawings, renderings, models, and photographs. Canadian Centre for Architecture. 514/939-7000.

See the U.S.A.: Automobile Travel and the American Landscape
Washington, D.C.
Through May 7
This exhibition celebrates roadside architecture and the culture of the automobile. It features photographs by John Margolies, an expert on roadside architecture and author of 10 books on the subject. National Building Museum. 202/272-2448.

Art Deco Festival
Miami Beach
January 10–16
A festival celebrating the 75th anniversary of the 1925 Exposition Internationale des Arts Decoratifs et Industriels Modernes. There will be guided tours of Miami Beach's Art Deco district, a collectibles street fair, films and lectures, and live music. For information, call the Miami Design Preservation League at 305/672-2014.

ICON 2000
Dallas
January 14–17
More than 70,000 construction industry professionals are expected to attend this year's event, which combines the International Builders' Show and the International Commercial Construction Exposition. Register online at www.BuildersShow.com or www.ICCON.com.

Claude Parent: An Oblique Lineage Toward Hypersurfaces
Los Angeles
January 15–February 26
A exhibition of the work of French architect Claude Parent, who champions an architecture that is dynamic, flexible, and tactile. Louis Stern Gallery. 323/254-0102.



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Dates & Events

Masonry Expo 2000
Las Vegas
January 17–18
The annual convention and tradeshow for the masonry and paver construction industry. Las Vegas Convention Center. 877/627-3976.

AGC Super Conference
Dallas
February 9–11
Associated General Contractors' annual conference covering matters related to construction project delivery. Westin Galleria. Call 703/548-3118 for information, or visit www.agc.org.

Frank Lloyd Wright: Windows of the Darwin D. Martin House
Washington, D.C.
February 18–August 20
An exhibition of art glass windows, doors, and skylights that Wright created for the house. National Building Museum. 202/272-2448.

Water Sensitive Ecological Planning and Design
Cambridge, Mass.
February 25–26
An international symposium that explores promising procedures, options, and limitations in water management. Part of Harvard's lecture and exhibition series, "100 Years of Landscape Architecture." Harvard Design School. 617/496-0436.

Restoration & Renovation
Boston
February 27–29
A tradeshow and conference dedicated to architectural rehabilitation, cultural landscape preservation, collections care, and historically inspired new construction. Hynes Convention Center. 800/982-6247.

Harvard Asia Design Conference
Cambridge, Mass.
March 9–11
This conference will explore Modernism's inroads into Asia. Call 617/621-9963 or visit gsd.harvard.edu/asiagsd for more information.

Competitions

The Rotch Traveling Scholarship
Application deadline: January 10
This $30,000 scholarship allows a young architect to study in a foreign country for up to a year. Eligible are U.S. citizens under 35 years old with at least one year of experience at a Massachusetts firm or an architecture degree from an accredited Massachusetts architecture program plus one year of professional experience anywhere. Visit www.rotchscholarship.org.

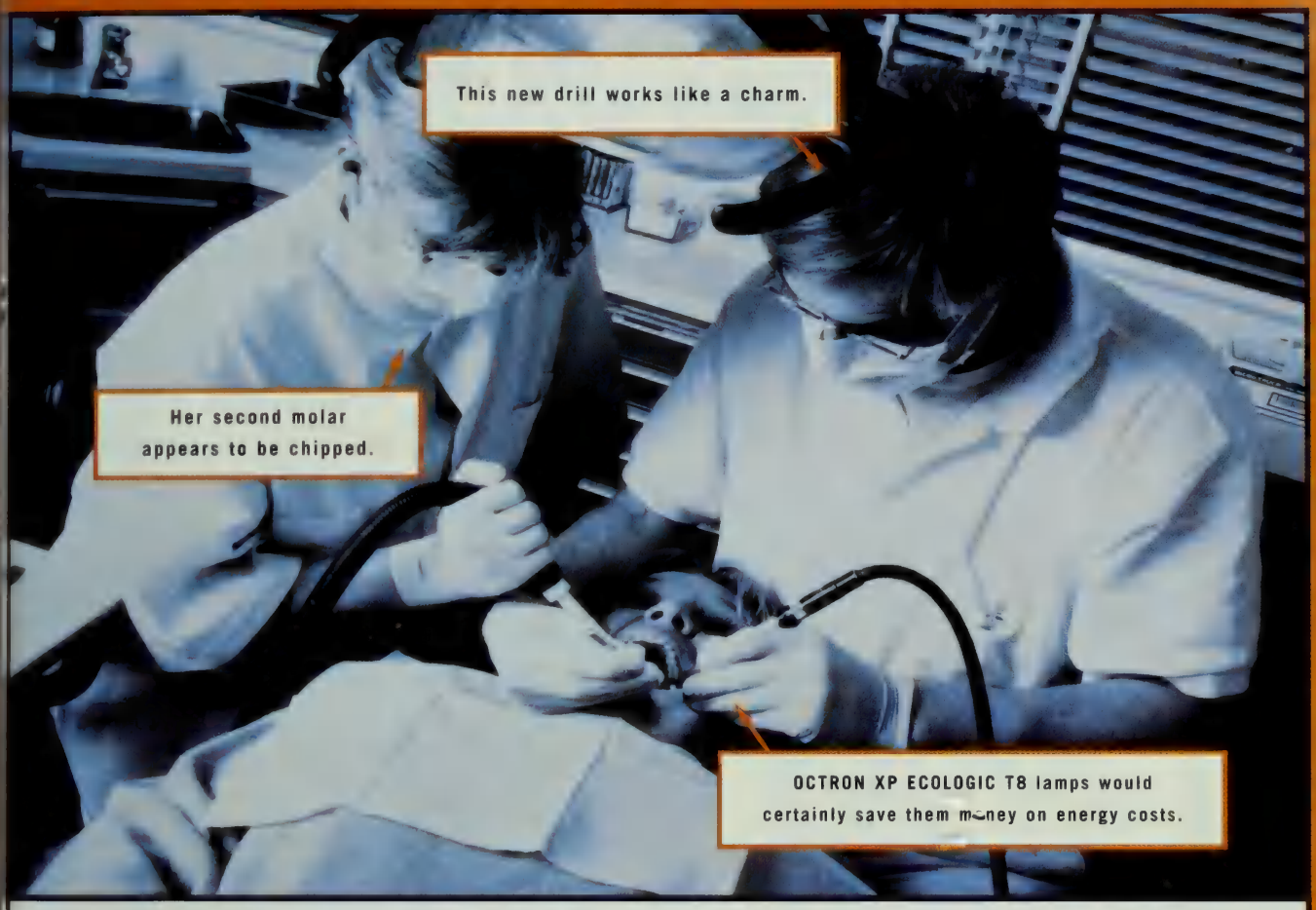
National Endowment for the Arts competition grants
Deadline for letter of intent: January 18
The NEA is offering grants for the establishment of design competitions that involve public buildings, planning, landscape, graphic design, and industrial design. Guidelines and applications are available at arts.enow.gov. Call 202/682-5452.

The James Beard Restaurant Design & Graphics Awards
Submission deadline: January 31
For architects and interior designers who exhibit excellence in restaurant design. Call 212/627-1064 or 212/645-3654 or visit www.jamesbeard.org.

1999-2000 Young Architects Forum
Submission deadline: February 18
This annual ideas competition, sponsored by the Architectural League of New York, is open to architects who have graduated from architecture programs within the last 10 years. Winners receive a cash prize and are invited to exhibit their work and present lectures in May and June. For an entry form, call 212/753-1722.

Plan: Section
Submission deadline: March 2
Arcade magazine is sponsoring an easy-to-enter competition: submit one plan, one section, and one sentence about a completed, in-process, or speculative building. E-mail arcade00@msn.com for a full prospectus, which will be available January 12.

Business Week/Architectural Record Awards
Registration deadline: March 16; submission deadline: April 18
This annual awards program recognizes distinguished collaboration between clients and architects to achieve strategic business goals. Entrants submit a mission statement and business plan describing how the project fits into an organization's overall goals. Also submitted are descriptions of both the process of design and how the project resulted in business success, including measurements of results where available. Eligible are public- and private-sector projects of any budget, both new construction and renovations, completed anywhere *(continued on page 196)*



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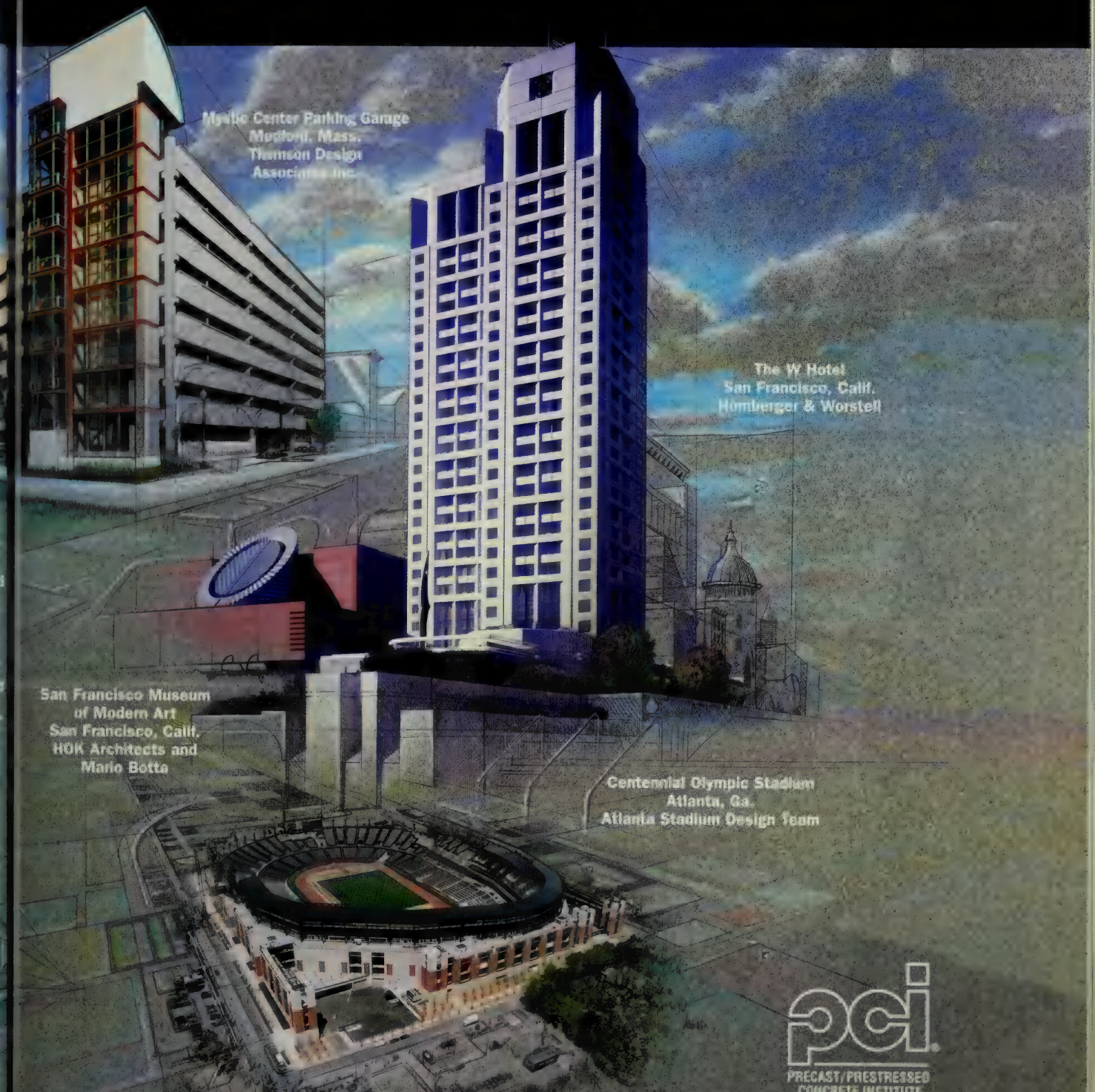
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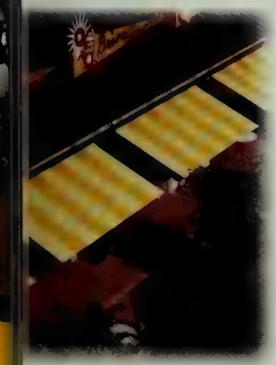
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CIRCLE 35 ON INQUIRY CARD

The Other Side of the Fence:

What Drives Landscape

By Paul Bennett

Landscape design has gained new cachet in architecture circles. Until only about five years ago, many architects saw landscape design as window dressing, a finishing touch in the design process. Now, landscape architecture is becoming a new frontier, a discipline perhaps more fertile for developing new concepts than architecture: context trumps objects. Some architects are experimenting with landscape, such as Peter Eisenman, FAIA, with his proposal for the railyards on the West Side of Manhattan, and Iowa architect Bill Conway, AIA, with his designs for Interstate 80 rest areas. Landscape architects, meanwhile, have always known the rich conceptual depth of their profession. They're a little bothered that architects think they can cross the natural boundaries between the professions with ease, boundaries that exist for pragmatic reasons. There's a lot more to landscape architecture than planting design and circulation plans. In the same way that buildings fall down, not all landscapes work.

Architects' new interest in landscape architecture, however, is more than curious experimentation. Architecture is more collaborative today than ever before, and landscape architects have become prized members of design teams. Many architects realize that landscape can work in dialogue with buildings, helping to expand a narrative beyond what any building could accomplish alone. In other instances, landscape architects bring discrete technical knowledge and close attention to such issues as grading and ecology, which architects just don't learn in school. And in some cases, architects are learning that landscape architects, because of their experience with large scales and natural systems, are well equipped for synthesizing ideas and fusing concepts: they are consummate collaborators. Still, collaboration requires a certain degree of understanding. For architects to simply work with landscape architects—never mind dabbling in their realm—they need to grasp the larger issues that have transformed landscape design in the last five years.

The greening of landscape architecture

The single most transformative issue in landscape has been the influence of ecological science. Environmental issues are now in the mainstream, which means that landscape architects need to do far more than make places pretty. Woefully slow to absorb the environmental revolution of the 1970s, landscape architecture finally woke up to it in the 1980s, and by the early 1990s a handful of firms were specializing in ecological design. At the turn of the millennium, environmentalism is no longer a matter of specialization. Today, it is difficult to find a landscape architect who isn't thinking about ecology in some way.

Paul Bennett is editor at large at Landscape Architecture *magazine and the author of several books on gardens published by Princeton Architectural Press.*

Sacred grounds

For many years the leader in ecological design has been Philadelphia-based Andropogon Associates. Although sometimes criticized for a lingering romanticism, Andropogon rose to the top of the ecological game by combining good science with strong design. It has carved a niche in the field of ecological restoration—that is, the practice of redesigning spaces so that they conform better to natural processes and systems. In this realm, the firm's redesign of Frederick Law Olmsted's tripartite Louisville park system is exemplary. Here, it recast the classic 19th-century picturesque idiom in an ecological mold. Large open spaces of grass, called *greenswards,* were redesigned as wild grassy meadows, thus reducing runoff and reliance on fertilizers and herbicides. In the woodland areas, the firm reengineered the paths to create large swales to capture water. Andropogon also instituted a reforesting program for the edges of the woodland areas to mimic natural succession, which entails open meadows giving way to small shrubs, giving way to mature canopies. Now, the park is not only a place for recreation, but it is also an ecological entity, a refuge for nature as much as for people. More than a facelift, this work was a reconception.

Ecology has even infiltrated the starkly minimalist work of Berkeley-based Peter Walker and Partners (PWP). Part of this shift is due to environmental regulations, says partner Tom Leader: "You can't do anything that doesn't help repair the environment these days." But without "knee-jerk naturalism," PWP approaches ecology as a design component rather than the sole parti. The result is an intriguing mix of natural and geometric forms. At the new Boeing commercial airline headquarters in Renton, Wash., on the site of an old racetrack, PWP confronted the discovery of a wetland after work had begun on the SOM-designed buildings. PWP accentuated the dendritic form of the wetland by extending the ribbons of wetland through the center of the site and reintroducing a natural flow of water. Over this, they laid an enormous grid of trees oriented toward Mount Rainer, views of which

Architecture Now



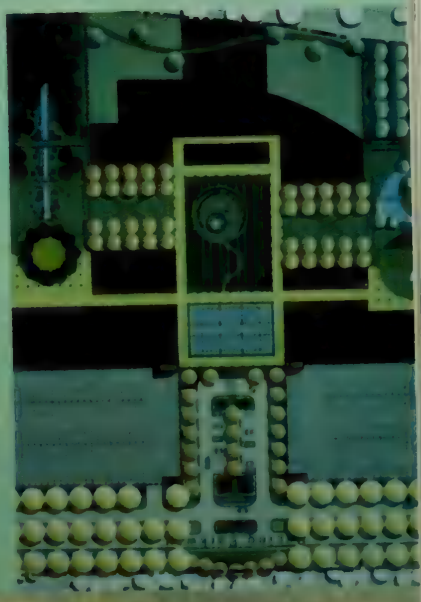
OSLUND.AND.ASSOC.

Landscape architects tend to mature within the shelter of a firm, emerging only in midcareer to make a name for themselves. Tom Oslund recently left the confines of HGA to start Minneapolis-based oslund.and.assoc., an eight-person firm taking on commissions from planning to design, from large corporate campuses to art gallery installations.

Oslund was the master planner on new corporate campuses for the Good Samaritan organization in Sioux Falls, S.Dak., and for the Medtronic corporation in Fridley, Minn. On each project, Oslund translated the client's program into a large-scale landscape plan. For instance, at the Good Samaritan campus, Oslund sited the chapel (yet to be commissioned) as the entrance marker for the complex and then revolved the rest of the architecture around a central lake, which has a kind of equalizing effect on the overall layout. The conference center, designed by Julie Snow, FAIA, was the first completed structure.

At Medtronic Headquarters, Oslund used architecture to create a series of interlocking, interior landscapes. What might have been leftover pieces become essential corridors and visual linkages.

"We develop philosophical approaches to the structures," says Oslund, "and look at them in terms of the way they meet the ground and the way they fit into the overall site. [In a campus context] buildings tend to be inspired or grow out of the site rather than out of a derivative style that is flashed around in the latest magazines."



The Good Samaritan Society's headquarters in South Dakota (above) and Medtronic's headquarters in Minnesota (right).

ANDROPOGON ASSOCIATES

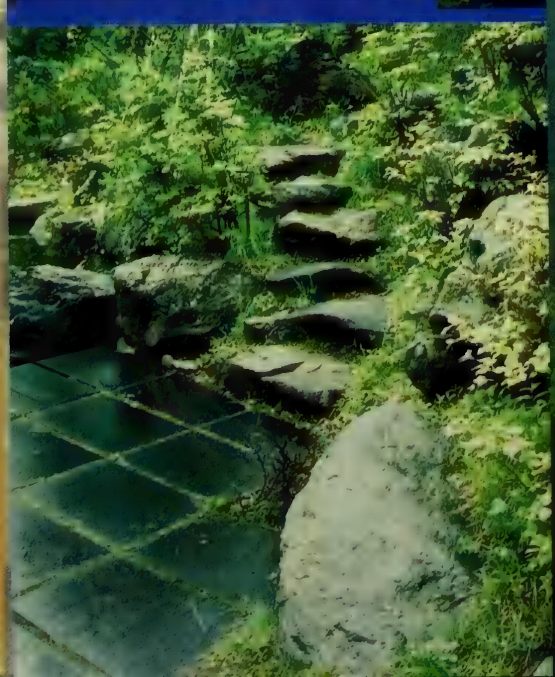
Ian McHarg rocked landscape architecture in 1969 when he published *Design with Nature*, his clarion call for ecological planning. It galvanized the profession, but perhaps none felt it so strongly as McHarg's students at the University of Pennsylvania. Among them were two couples, Rolf and Leslie Sauer and Colin and Carol Franklin, who were to found Andropogon, now a 32-person firm based in Philadelphia. The firm has carved a niche for itself in ecological restoration.

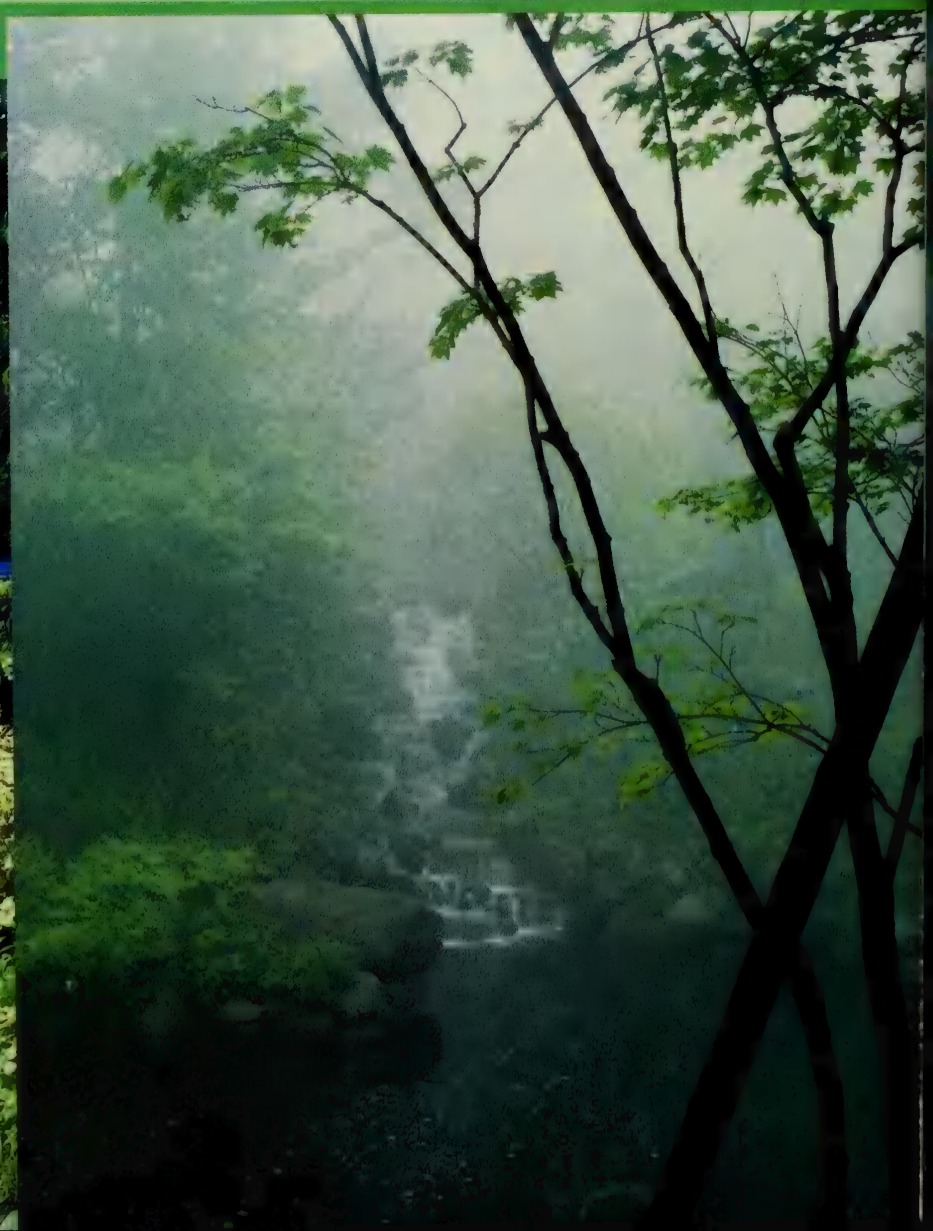
At a new spa resort in Japan, adjacent to a national park, Andropogon worked with Venturi, Scott Brown and Associates to reduce the impact of the resort's buildings and paths on the surroundings. Andropogon did a large amount of the design work on-site, including the design of a cantilevered bridge built into the side of a densely forested mountain, a means of "immersing" visitors in the experience of nature. The firm also persuaded the local landscape architect to remove and save 3,000 trees, which took nine months. "This is an oak chestnut forest with an understory of azalea and cherry," says Carol Franklin. "It's to die for. You cannot buy this in a nursery." It was a needling point perhaps, with big ramifications. "Venturi got the bug and developed the idea of 'the village in the forest' for the architecture. It was a real dialogue."

In another project demonstrating the widening expertise of landscape architects, Andropogon recently created a visitors' master plan for Frank Lloyd Wright's Fallingwater, where rampant tourism has seriously degraded both grounds and building. The firm will restore the pilgrimage approach to the building, accentuating the woodland context and hiding the support facilities, such as maintenance sheds and parking lots. The plan ventured so far afield from traditional landscape issues as to suggest the number of visitors that should be allowed at one time.

A romantic sensibility is mistakenly ascribed to Andropogon. In truth, the firm wrestles with Postmodern complexities. "We can mathematically describe a tree," says Carol Franklin, "but not with Euclidean geometry. The great tragedy is that the designers have very infrequently tapped the scientific knowledge of our age, such as the science of ecology and fractal geometry. [We are attempting] designs that are about the real geometries of nature."







The diversity of Andropogon's work at Nikko Kirifuri Resort in Japan emerges in a waterfall and pool (below), terrace steps (below left), and a bridge over restored foliage (top left), co-designed with VSBA.





HARGREAVES ASSOCIATES

The 1990s were good to George Hargreaves. He entered the decade as the profession's enfant terrible, cranking out surprisingly original work while under the tutelage of his mentor Peter Walker, and he left it as landscape architecture's undeniable leader. Big news in the industry has been his capture of several large-scale commissions that would traditionally have gone to architects. They include the redevelopment of Louisville's waterfront and master plans for the University of Cincinnati and the Olympic Village in Sydney.

Sydney Games organizers called Hargreaves when design development for the Olympic Village hit trouble. Supposedly, so little communication existed between the architects of individual parcels that no one accounted for a five-foot grade change in the middle of the site. Hargreaves established a working design committee and produced a comprehensive plan for the site that unifies the architectural components around a central plaza. The plan also introduces ecological interventions to the site, including green corridors and a series of fountains that purify water from a nearby polluted stream.

In recent years, the San Francisco- and Cambridge, Mass.-based firm has focused on making natural processes accessible. Along the Guadelupe River in San Jose, Calif., Hargreaves combined an engineered channel bed with a wetland to create a natural, ecologically inspired design. The firm developed the underlay with the Army Corps of Engineers and consulting biologists, ecologists, and engineers, replacing the traditional U-shaped concrete riverbed with a system of stone terraces, gabions, and vegetated slopes. The design introduces biological diversity into the river system to help slow flows and clean water. It also creates an infrastructure of interlocking stairways that provide unfettered access to the river.

The grounds of the Aronoff Center for Design and Art (top left) and Sigma Sigma Commons (top right) at the University of Cincinnati. Guadalupe River Park in San Jose, Calif. (bottom left), and Sydney's Olympic Village (bottom right).











CIVITAS

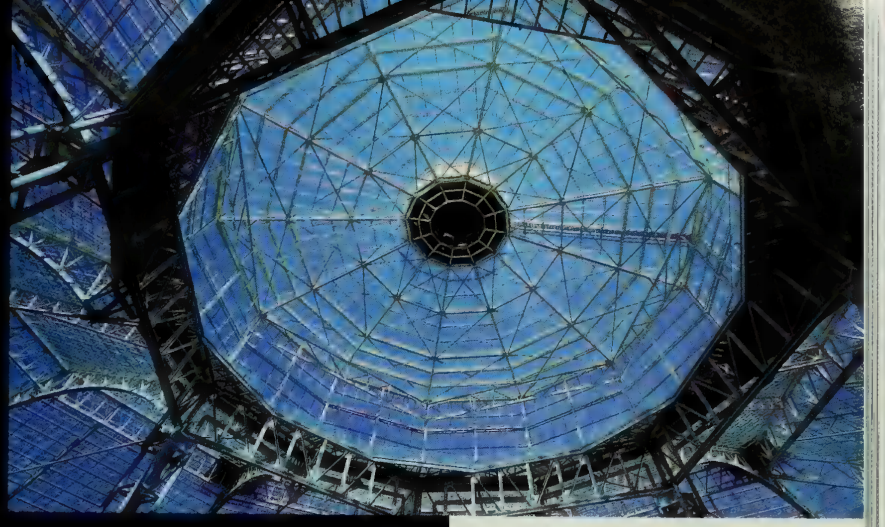
"Our society presumes that knowledge is power. I don't believe that's true. I believe judgment is power," says Mark Johnson, principal of Denver-based Civitas and a long-time agitator for the landscape architecture profession. According to Johnson, landscape architects are schooled in the art of making judgments.

This credo drives Civitas' versatility. The landscaped plazas the firm designed for Great-West Life's U.S. headquarters in suburban Denver reflect the angular geometry of the company's building and the buildings of the surrounding office park. For the University of Colorado's Laboratory for Space Physics in Boulder, the firm chose nearly the opposite approach, restoring native grasses that grew up right next to the buildings. For MCI's western headquarters in the foothills of Colorado Springs, Civitas took the middle road, weaving grass between sandstone pavers at the site's edges to create a transition zone between buildings and their natural surroundings.

Civitas works primarily in landscape design, about half for public agencies and half for the private sector. With the help of architects and planners on staff, the firm has also made extensive forays into the realms of master planning, urban design, and architecture, including the recent commission to replan the National Renewable Energy Laboratory. The laboratory, which is the federal government's largest alternative energy test site, has expanded haphazardly over the years without regard to site characteristics, most notably the problem of extreme runoff velocity from a nearby mesa. Civitas, inspired by an unrealized 1970s design by architecture firm CRS, manages the water flow by siting long, linear buildings parallel to runoff patterns. Civitas didn't design the buildings, but did determine their footprints.

This page: The Laboratory for Space Physics at the University of Boulder (top left); Great-West Life U.S. headquarters in surburban Denver (bottom left); and MCI western headquarters in Colorado Springs (above).

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Water Pollution Control Laboratory in Portland, Ore., landscape design by Murase Associates.

dominate the site. The contrast between the strikingly man-made and the seemingly natural stirred some controversy, but also heightened awareness of previously hidden ecology.

If society has become estranged from nature, landscape architecture is responding by revealing underlying processes. Robert Murase Associates in Portland, Ore., has taken this practice of "daylighting" to new levels of artistry. At the Water Quality Laboratory in Portland, Murase captured storm runoff in an intricately designed "bioswale." The water passes through a steel trough planted with wetland species that clarify and clean the water of pollutants. The system successfully recaptures and purifies runoff, usually trundled off-site by a mundane network of underground pipes.

The influence of ecology in the profession has prompted most larger landscape firms to hire ecologists, which in turn readies firms for different types of commissions. In the ecological realm, San Francisco-based EDAW, the country's largest landscape architecture firm, and JJR, based in Ann Arbor, Mich., are leading the way with large-scale environmental planning and remediation projects. JJR's design for Crosswinds Marsh, a constructed 1,000-acre wetland that mitigates the impact of an expansion at Detroit Metropolitan Airport, was awarded the profession's highest award this year.

From the particular to the general

Another big idea currently afoot is of landscape architecture as a very general design discipline. Many landscape architects think that instead of focusing on specific technical problems (like ecology), their profession should consider the interrelationships of every element in a system. For instance, they should not only relate buildings to each other, but they should also stimulate interaction among the people using a site. This kind of thinking has prepared landscape architects to meet the newest expectations for academic environments and workplaces: progressive adminstrators and managers of college and corporate campuses strive for "total environments" where learning and productivity can be heightened through the manipulation of the user's experience.

Carol Mayer Reed's design for the new Nike headquarters in Portland, Ore., represents a new breed of corporate campuses. In addition to pleasant courtyards for sitting, employees can now enjoy an extensive running track, soccer fields, and nature walks along a stream.

At university campuses, the changes have been more complex. One major challenge today is to knit together campuses that have been fragmented by haphazard building. The University of Cincinnati commissioned San Francisco- and Cambridge, Mass.-based Hargreaves Associates to create a campus master plan in 1991. The initial work evolved into extensive urban design, until ultimately, the firm reviewed architectural proposals, giving advice on the best architects to hire for each project.

The problem with the University of Cincinnati campus, says George Hargreaves, was that piecemeal planning had destroyed the sense of place. What the landscape architect provided was an overarching strategy for the entire campus, connecting fragmented zones by rethinking the space between them—the landscape. As a result, the new buildings at Cincinnati, currently being designed by a "who's who" of architecture, including Frank Gehry, Morphosis, Pei Cobb Freed, Peter Eisenman, and Gwathmey Siegel, respond first to the spatial fabric of the campus and second to their own programmatic or technical needs.

The idea of the landscape architect as a consummate generalist can be dangerous, potentially weakening the public perception of landscape architecture. Danger aside, on the ground we're seeing the idea take hold and redefine the profession in entirely new ways. Denver-based Civitas has used landscape architecture to infuse solid design ideas into planning. The firm was brought on early to work on the reuse plan for Denver's abandoned Stapleton International Airport. Civitas' ideas were so well thought out that it has stayed on to shepherd the project through the next phase: negotiating with the developer on behalf of the city.

Collaboration: More strain than synthesis

Another major theme in landscape architecture today is collaboration. In some ways, the ecological revolution and broader conceptual horizons have driven the profession in this direction—some would say it is impossible to create a landscape without working with a host of other professionals, including ecologists, engineers, artists, and architects. Collaboration requires more, however, than just working together. It requires breaking down the hierarchy of prime- and subconsultants and creating an equitable team to which each professional contributes.

(continued on page 194)



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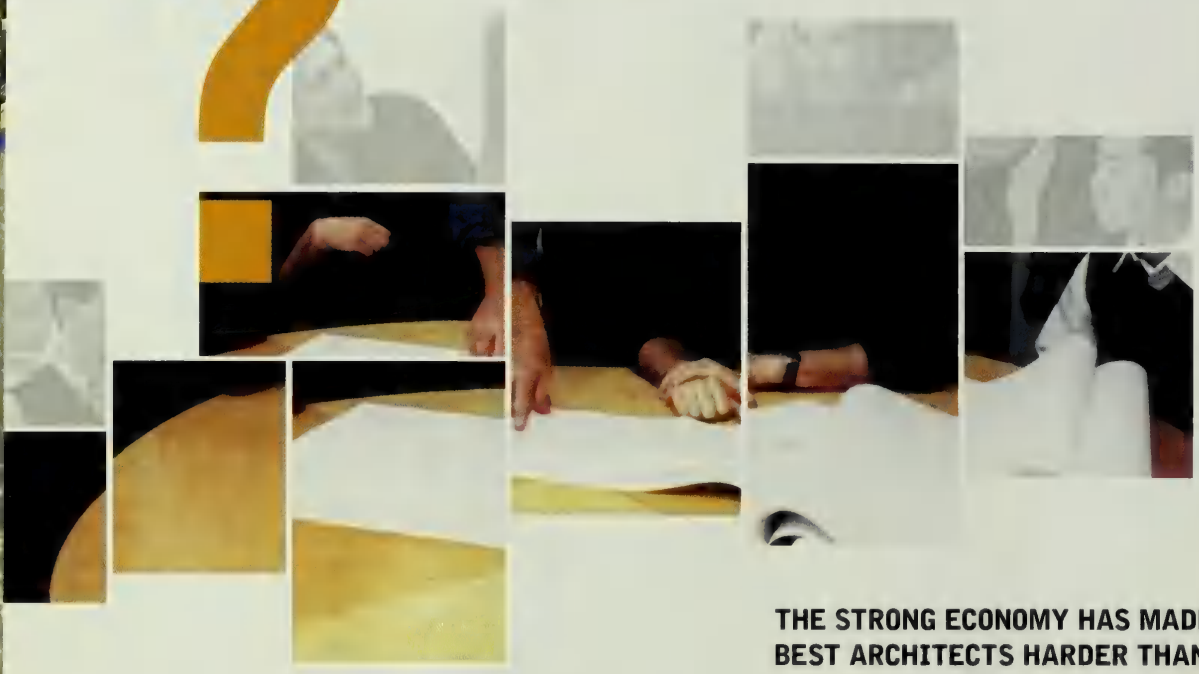
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THE STRONG ECONOMY HAS MADE KEEPING THE BEST ARCHITECTS HARDER THAN EVER.

By Kira L. Gould

Architecture firms all across the country are looking for good young architects—and they are probably calling yours. Gordon Godat, an architect for seven years with RTKL in Baltimore, says he is approached on a regular basis, through friends, by firms, or by headhunters. Recruiters are offering better job titles, larger salaries, and sometimes summer hours, flex-time, telecommuting arrangements, or family-leave incentives. So far, he's not been tempted, but the calls keep coming.

According to U.S. Department of Labor statistics, during the past three years available positions at architecture firms increased from 112,000 to 141,000—about 8 percent per year. The construction industry is humming, and the pressure to attract and retain talented architects is raising the bar on employment practices. The market for those with three to seven years of experience is particularly tight. It's not exactly a "generation" that's missing, but there's a significant gap in the labor market. Few firms were hiring in the early 1990s, and the folks who couldn't get jobs then aren't lining up for the midlevel jobs now.

Architecture offices are not alone in their struggle to keep positions filled. The strong economy is putting the squeeze on many industries. Other Department of Labor statistics show a continuing decline in the median tenure of all workers. These numbers show men aged 35 to 44 had been at their jobs for 7.3 years in 1983; by last year, the same age group had remained at their jobs just 5.5 years. Some analysts believe that the hundreds of career sites on the Web are actually transforming the employment marketplace by spurring a culture of job-hopping. And tales of ordinary folks whose stock options made them millionaires overnight when their privately held companies went public are now so commonplace that it is hard for those who have traditionally been reluctant to change jobs to resist jumping ship.

Po-Sun Chen, principal with Zweig White & Associates Inc., a management consulting and publishing firm that serves the architecture and engineering fields says that when discussing turnover, it's important to distinguish between large and small firms. "We've found that it's harder to measure at small firms for a range of reasons. Even in hard times, many

Kira L. Gould is a writer living in New York City. She telecommutes to work at Gould Evans Goodman Associates in Kansas City, Mo., where a creative office environment and child-, pet-, and nap-friendly policies help keep people on board.

people tend to remain at small firms—loyalty is a bit stronger," Chen says. At large firms, turnover rates hovered around 15 percent per year five years ago, and they are up to about 25 percent now. "It's important to remember that turnover should not be zero—not all turnover is a bad thing for an organization. But there are many costs associated with turnover, and firms are trying to become more proactive to keep the people they need."

Bucks, benefits, and ownership

Architects' salaries (including all monetary incentives) have risen 25 percent since 1996, a 10 percent rise when adjusted for inflation, according to the *Compensation at U.S. Architecture Firms 1999 AIA Report*. Ronnette Riley, FAIA, runs a 13-person office in New York City and welcomes the salary increase. "As an industry, I think that we are significantly underpaid," she says. "Yet it's still a struggle. Although fees have also risen a bit, they have not caught up with salaries [see "The Fee Dilemma," parts 1 and 2, October 1999, page 111, and November 1999, page 60]."

To better control the disparity between fees and salaries, firms are using bonuses, profit sharing, and other compensation tactics to keep base salaries from inflating too greatly. Perhaps principals know that when the feverish pace of the economy does slack off, they will be unable to support large, highly paid staffs. Instead of offering large starting salaries, firms are using signing bonuses more frequently. These can help a firm hire new people without upsetting the salary structure. Some firms are experimenting with bonuses that reward longevity, factoring in the years an employee has been with the firm. Fifteen years ago, firms didn't need to offer the benefits and perks common to other industries because there were more architects than jobs. Many people felt lucky to be working at all. In 1990, only 64 percent of firms offered medical insurance. Today, 95 percent do, according to the recent AIA compensation report.

Traditionally, firms also offered stock only to partners. In recent years, the opportunity for rank-and-file employees to own a piece of the firm has become more widespread. The founding partners of Looney Ricks Kiss Architects in Memphis began a shared-ownership strategy when the firm opened its doors in 1983; stock is offered to employees throughout the company. "It just seemed like the fair thing to do to show our commitment to sharing the wealth," says Frank Ricks, FAIA. "And people appreciate the sharing mentality. Ultimately, it helps build loyalty and commitment." R. Nicholas Loope, AIA, CEO of the Durrant Group based in Phoenix, says that when employees have an ownership stake, they know that looking out for themselves also means looking out for the best interests of the firm. "Members who choose to take an equity position in the firm participate in strategic planning. It's a 'bottom-up' style of communication that we think increases the degree of interest and commitment of employees."

Environment and culture

Healthy profits have provided many firms with the resources to fund initiatives designed to strengthen the organization—including those to help keep people on board. Many firms have adopted practices common in other businesses accustomed to competing for the best help, as the compensation and ownership strategies illustrate. No matter how many of these more conventional strategies architecture firms adopt to keep employees, however, they will continue to court a somewhat idiosyncratic workforce that has never counted salary and benefits as top priorities for employment. According to Ed Friedrichs, FAIA, president of Gensler, "People tell us over and over that they stay with us because of our culture. They say that they get a kind of family 'support' here."

Management consultant Donna Gaines, AIA, of Gaines International in Chicago, compares architects to workers in the information technology business. "The aesthetics and location of the office are impor-



Capping Growth to Focus on Quality.

Mackey Mitchell Architects is a 44-person firm in St. Louis, Mo.

At the offices of Mackey Mitchell Architects, managing partners Gene Mackey, FAIA, and Dan Mitchell, FAIA, share an office and an open-door policy that is noticed—and appreciated—by the people they work with every day. "People feel the firm really cares about the individual," says Mackey. "Time-off policies are flexible, mentoring is a priority, and we believe that lifelong learning is important. We encourage people to pursue what interests them as individuals—because the firm benefits from such study. The whole group goes on an architectural 'tour' each year. A few months ago, we were in Columbus, Ind., and last year, we visited the Cranbrook Academy of Art. It's a way we get to know each other, away from the office, but that still relates to architecture. That investment pays back again and again. As leaders of the firm who want this to be a great place to work, we have to extend ourselves in creative ways."

For the Mackey Mitchell leadership, this has also meant deliberately limiting the size of the staff. "We are very successful, and we do not want to grow," Mackey says. "We turn work away. We feel that we could risk the commitment to excellence if we allowed ourselves to balloon up—it's a risk we are not willing to take." The firm may not be growing in number, but it is by no means static. Office leaders encourage the staff to make decisions on their own and strive to banish office politics. In fact, studio members recently redesigned the office space to foster more interaction.

In the spirit of delegating responsibilities to staff members, the agendas for weekly meetings are set by the staff, not the partners. That respect for people at all levels of the firm is one of the things that has kept Paul Wuennenberg, AIA, on board. "Money alone has not been a lure for me. It's the work, the people, and the culture of excellence. The complexion of the work in the office—small jobs as well as large ones—is such that people of all ages get significant design, project architect, and project management responsibilities. And, we have developed a culture within the office of pushing technology and looking for new ways to study architecture," Wuennenberg says. "These are passionate people, and they all really believe in what they do. There's no underestimating what that means in terms of day-to-day environment."



Big Firm Resources and Opportunities

RTKL is a firm of 750 individuals operating in Los Angeles; Baltimore; Dallas; Chicago; Washington, D.C.; Toyko; and London. David Brotman, FAIA, vice chairman of RTKL Los Angeles, believes that his firm offers the closeness and the collegiality of a small firm and the work opportunities of a large firm. "Young people will not get lost here. But they will benefit from the fact that the firm is large—the work is exciting, and often international."

Brotman also cites the firm's annual design conference, which brings together the top young designers from all the RTKL offices, as another thing that keeps the culture stimulating. "We are not afraid to spend money on experimenting. We do a lot of research and development in terms of how we deliver design. But we socialize like a small firm with monthly office parties so people can get to know one another."

After leaving MIT nearly six years ago, architect Helen Jeffrey started her career at RTKL Baltimore. She says she stays because she gets a chance to vary her role in the firm. "I have written marketing proposals, checked shop drawings, worked on models, and taught CAD; I like working on large, multiphase projects, but I enjoy the chance to do different things." The people and the learn-while-you-earn environment has also impressed Jeffrey. "I'm learning from gifted people that I really respect. The investments that the company is making in its people and in their tools, such as technology, are important. I also appreciate the teaching culture."

Gordon Godat, AIA, joined RTKL Baltimore after graduation in 1992. He acknowledges that "it's a great time to be a young architect," but disdains those who fail to see the big picture in the midst of a strong market. "Many people are simply attracted by the money and fail to realize the overall opportunity and potential of being a part of a diverse firm," he says. Godat was hired during the recession, which he felt made a strong statement about how successful the firm was. He also noticed that there was a five-year difference between himself and the next youngest architect, and he recognized that this age difference might mean there would one day be an opportunity for him to move into management. "RTKL promised a primary design role from the start, which they've held to, and I've been in that role ever since," Godat says. Project typology was critical, too. "I'm interested in projects on the macro scale that affect the way cities look and operate."

He has not been disappointed. "The design opportunity is overwhelming. The projects offer challenging programs, exciting clients, and international travel. And the sense of openness here has been terrific. I feel I can talk candidly with people at all levels and that I can explore new ideas. RTKL has never said 'no' to any idea I've put forward."

tant. Architects want to work in a cool place, with good lighting, where there's a sense of fun." A dynamic space and lighthearted environment can also go a long way toward relieving the stress and increased deadlines that the fast-paced construction market has brought into many firms. At the Denver office of Fentress Bradburn Architects, showers have been provided for employees who like to jog midday and plans for a small fitness area are under way. According to founding principal Curtis W. Fentress, FAIA, this change emanated from a detailed employee survey.

Employee amenities can take many forms. Shortened workweeks are not widespread, but in regions where there's an emphasis on outdoor activity, flex-time is gaining popularity. The Steinberg Group, a 100-person firm in San Jose, Calif., closes at noon on Fridays and makes up the time Monday through Thursday. Frank Ricks, of Looney Ricks Kiss, believes that his company's project-team structure helps ensure that employees can get time off for family events. "We have offered the opportunity to telecommute in certain situations, and we try to remain as flexible as possible to meet a person's needs—adjusting to the person is almost never as expensive as trying to replace them."

Empowering the individual

Learning on the job has always been important, but, increasingly, firms are codifying how they address this issue. Gensler is an industry model often recognized for its approach to continuous learning. In addition to providing some tuition reimbursement for approved classes, the firm offers a deep and diverse set of in-house educational programs as a part of what the firm calls "Gensler University."

Even smaller firms can conduct such programs. Lucinda Ludwig, AIA, vice president of architecture at Design Forum Architects in Centerville, Ohio, was impressed by the emphasis on staff training at Kaplan McLaughlin Diaz in San Francisco. She has modeled Design Forum similarly, as a teaching office. "I enjoy teaching, and so do others on staff. We think it's important to start the mentor process on the new hire's first day. That, plus a strong orientation program, makes them feel valued."

Education and development sometimes means going outside the office walls. At NBBJ Seattle, a yearly trip for staff costs the firm some $40,000. The group has traveled as far as Brazil and China to gain perspective and new insight. EDAW, a 1,500-person, San Francisco-based landscape and planning firm, runs a summer student program each year (costing close to $100,000). For employees, the chance to travel and work with interns—a summer camp-style week—is seen as a perk.

How an office is structured to handle work is also important: people at all levels want to get involved in the work in a meaningful way. John Kudrycki, associate principal at Fentress Bradburn Architects, notes that, "Job candidates care most about what their role will be and how good the work is." Kris Strain has been an intern architect at Fentress Bradburn for two years and says, "The firm does a mix of small and large work as well as national and international competitions. I have many opportunities to influence the design process. People aren't pigeonholed here, and the mentor program helps ensure that we move around the office for a varied experience."

Erin Olson Douglas, an intern architect for three years at Herbert Lewis Kruse Blunck in Des Moines, Iowa, says, "The difference here is the quality of the work that we do, the opportunities to contribute to that work, and the people. People are very receptive to ad hoc mentoring. I have more responsibility than any of my former classmates—it's valuable and exciting."

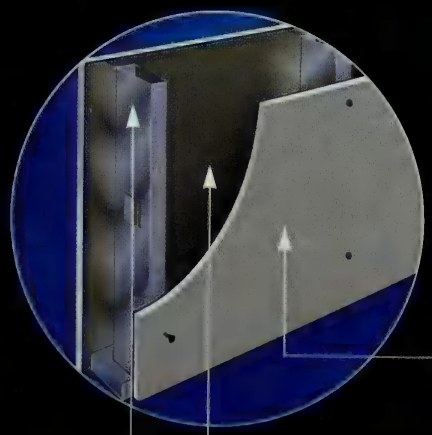
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Opportunity to Become a "Complete" Architect

Garrison Siegel Architects is a 12-person firm in New York City. Jim Garrison, AIA, and Rob Siegel, AIA, founded their firm in 1991. "Keeping employees is basic, but not easy," says Siegel. "Architects must feel that they are part of great work, that their personal growth is tangible and appreciated, and that they are intellectually and technically challenged. Getting and doing great work is critical to recruiting and keeping great talent."

The work varies widely. Last year, Garrison Siegel completed the Swiss Center in New York, and before that, they won a competition and completed a design for the Korean embassy in Beijing (which awaits funding). The firm has worked to keep salaries and benefits up to speed with industry shifts. While the firm doesn't offer profit sharing, they do give bonuses each year. These are calculated on several factors, including the length of time that employees have been on board.

Still, these efforts are not why people come—or stay, Siegel insists. Employees find an intellectual and professional comfort zone here, he says, pointing out that, after a couple of years, with his firm an employee can "become a 'complete' architect. They are all exposed to marketing, site visits, client and contractor meetings, and working out details on every aspect of the project. Jim and I work that way, too. We also push ourselves to invent or research new technology, and people get excited about that."

James Puckhaber, an intern architect with Garrison Siegel for more than two years, says he likes the "direct access to the principals and the fact that we all do everything—the exposure to all aspects of the work is important." He admits that he would like to work on larger projects, but says that the variety of work the office pursues keeps him interested. Puckhaber has noticed that many architects his age have been switching jobs every six months or so—far too soon, he says, to be tuned in with a firm's idiosyncracies and find one's niche in the organization's way of doing things.

The social side of Garrison Siegel is something that partners emphasize, too. Friday "happy hours" are typical, and social gatherings outside the office are organized on a regular basis. Last summer, a group of nearly 30—current employees and "alumni"—took a sail around Manhattan. "We work hard, but we also want to get out of the office and enjoy the city and each other," Siegel says.

eight years will slow. Kermit Baker, the AIA's chief economist, says that architects have positioned themselves to better weather the coming change. "We are seeing less of the exaggerated growth rates than we did in the 1980s. Most of us remember the recovery from that phase—it was a difficult time for the profession and we learned a lot." Still, the boom has permanently changed what architecture-school grads expect from employers: they may not enter the field for the money, but at least they can count on benefits from most firms. And firms of all sizes will likely continue to assume responsibility for educating and challenging young and rising practitioners. This market will leave its mark on the expectations of architects across the country. ■

Points of Enlightenment

What goes around comes around. Although everyone wants to be paid a fair wage for what he or she does, a good salary alone isn't the bottom line for most people. Workers say:

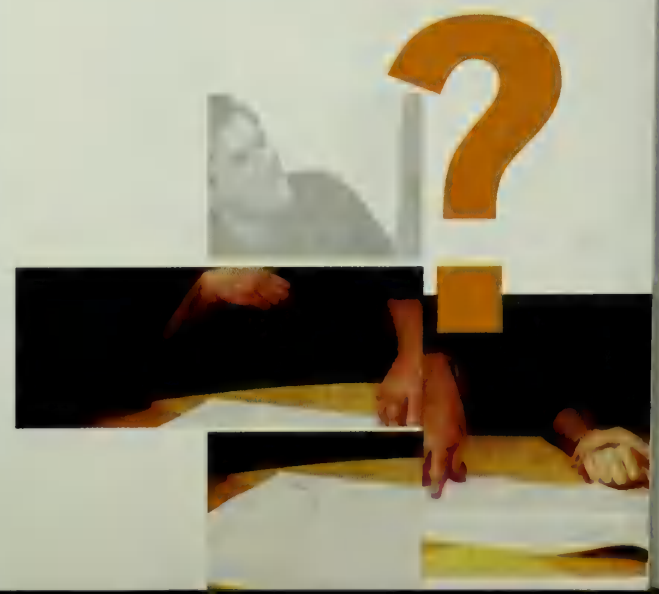
Don't pigeonhole me. Employees want interesting and varied work so their jobs don't become moribund. A former employee of one major firm says, "I got locked into writing specs because I was good at it. Pretty soon it seemed like the project managers had forgotten I was capable of doing other things, even though I kept reminding them I wanted to take on other assignments. I felt the firm had no long-term plans for me except more spec writing, so when I got another job offer, I bolted."

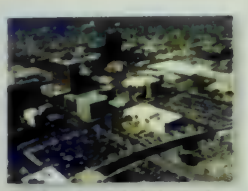
Mentor me. Whether learning opportunities are as sophisticated as the trips overseas offered by some architects' offices, as costly as tuition reimbursement, or as simple as monthly lunchroom seminars, the willingness to invest in education should be seen by workers and managers as a commitment to a lasting partnership made by both parties.

Recognize me for a job well done. Sometimes, rewarding an act of exceptional effort by an employee at a company party can be a more important and memorable moment in that individual's career than a pay raise or a cash bonus, which are normally kept confidential.

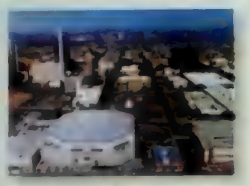
Work with me. The development of a "growth plan" for each employee helps keep the expectations and career goals of the employee in synch with the needs of the firm. This growth plan can become the basis for an annual or semiannual salary review. Such scheduled reviews are advantageous because they help establish a cause-and-effect relationship between a worker's accomplishments and progress and his or her salary.

Charles Linn, AIA

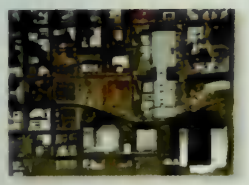




Northeast aerial photograph



Northern aerial photograph



Top view aerial photograph



3D models are created when wireframe primitives are "push-pinned" onto 2D source images in **Canoma**.



Sample animation of the ***Collier Center*** developed by **Opus West Corp.** "Fly-over" created by **Nick Hower** and **Kory Kapfer**.

Canoma at work

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This page: **Church of the Holy Trinity, Djakovica/Gjakova, completed and destroyed in 1999.**

KOSOVO: Walls but No Shelter

Photos by Ted Phillips

Last spring, while NATO planes carried out a bombing campaign against military targets throughout Yugoslavia, Serb forces—the Yugoslav army, paramilitaries, and civilians—used the cover of war to step up efforts to systematically remove Kosovo's Albanian majority. Approximately 100,000 Albanian homes were severely damaged or destroyed by Serbs, as were many mosques, some brand new and others dating from as early as the 15th century. Since June, and with the return to Kosovo of most of the 800,000 Albanian refugees, vengeance-seekers have targeted Serb homes and cultural monuments, like medieval Serbian Orthodox monasteries, as well as the homes of Roma (gypsies), who are viewed by many Albanians as Serb collaborators. This is happening even as Kosovo is under NATO occupation.

New York City-based photographer Ted Phillips documented the destruction. Unless both Serbs and Albanians use the same name for a town, the towns pictured are identified in Serbian and Albanian, respectively. *David S. Morton*

Below, background: **Hadum Mosque in Djakovica/Gjakova, built in the 16th century.**



Above: **Red Mosque in Peć/Peja, built in the 17th century.**

Below: **Home belonging to a Muslim Slav family in Kosovska Mitrovica/Mitrovice.**





Above: **Cafe formerly patronized by Serbs in Kosovska Mitrovica/Mitrovice, reopened by Albanians.**

Below: **Home belonging to an Albanian family in Kosovska Mitrovica/Mitrovice.**





Above: Albanian neighborhood in Peć/Peja.

Below: **Mosque near Prizren, destroyed before it was completed.**





Above: Jewelers' row in Djakovica/Gjakova.



Above: Homes belonging to Roma families in a village near Prizren.



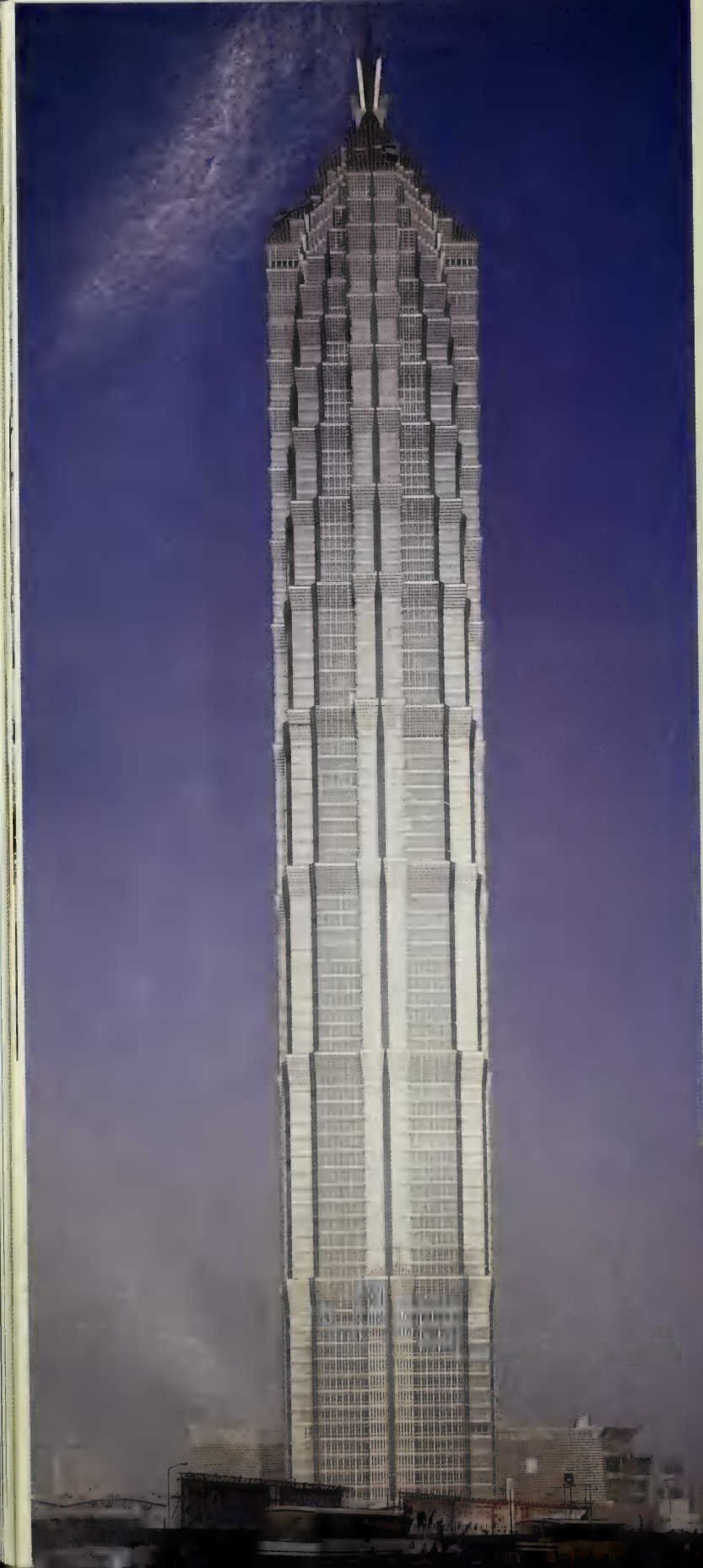
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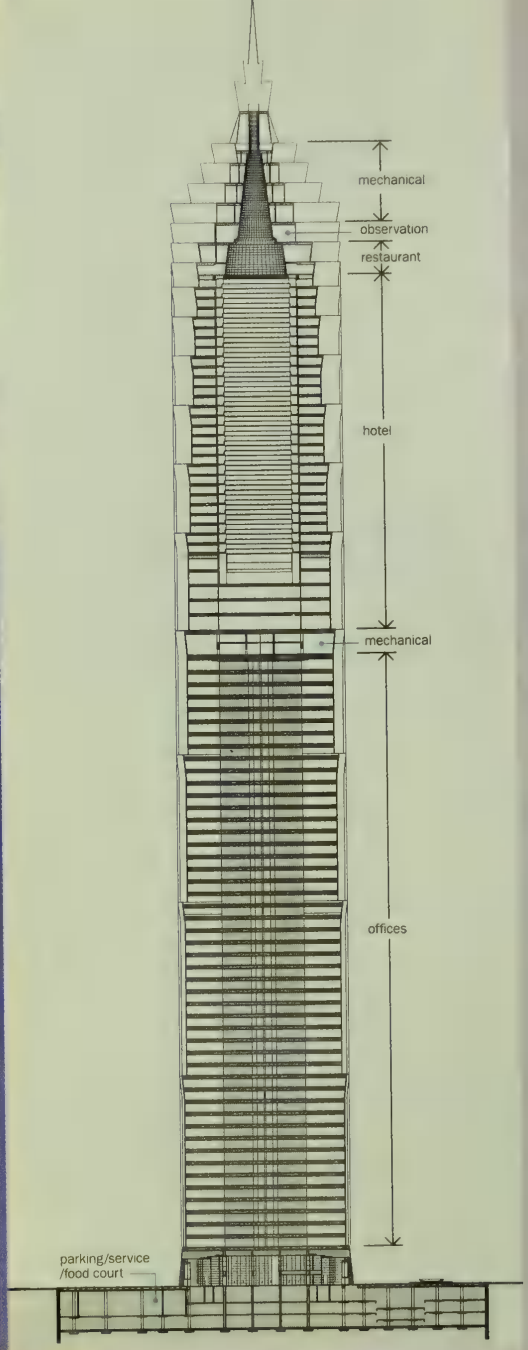
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Information Plaza





Located across the Huangpu River from the old part of Shanghai, Jin Mao anchors the new Lujiazui Finance and Trade Development Zone (opposite). The project includes a podium building with retail and banquet facilities (bottom in photo left), 52 floors of office space, and 31 floors of hotel rooms on top.

Rising at the heart of Shanghai's new business district, the **JIN MAO TOWER** designed by **SOM** reflects the new face of China.



By Thomas J. Campanella

Shanghai is not for the humble or the meek. It is a soul-rattling place where adrenaline runs from the taps and women dress to kill. Carl Sandburg would have loved it, and the muse of Louis Sullivan seems to have taken up permanent residence here. Shanghai has been called everything from "the Whore of Asia" to "the Paris of the East," but these days, the metropolis on the Huangpu River is most evocative of Chicago, its American sister city. And crowning Shanghai's skyline now is a monument straight from the shores of Lake Michigan.

Created by the Chicago office of Skidmore, Owings & Merrill, the Jin Mao building is China's locomotive ego in built form. Forget about human scale and the sustainable city; this one is for the romantics and the record books. Rising 1,380 feet above Shanghai's Pudong New Area, Jin Mao is the loftiest skyscraper in a nation that has erected more tall buildings recently than any on earth. The building's 70,000 tons of steel support the highest hotel in the world—the Grand Hyatt Shanghai, which boasts the tallest atrium ever built and the longest laundry chute.

Built for $540 million, Jin Mao is a self-contained city whose construction was an odyssey in itself. Never before in China had concrete been pumped so high; never had pilings been driven so deep. It is China's most intelligent building, with the equivalent processing power of a spaceship and wire enough to span the Pacific. It is also an icon, already known on the street as *dong fang ming zhu*—"shining pearl of the east."

Fueled by the boom economy of the 1980s, the Chinese landscape has undergone a cataclysmic transformation in recent years. Mountains have literally been moved for expressways and suburban tracts, and old urban districts have been blotted out overnight for shopping malls and office towers. It is at Pudong, across the Huangpu River from Shanghai, that a quasi-capitalistic "New China" is taking its most breathtaking form. A whole new city has erupted from the rice fields and village lanes, even as the remains of the past squat all around.

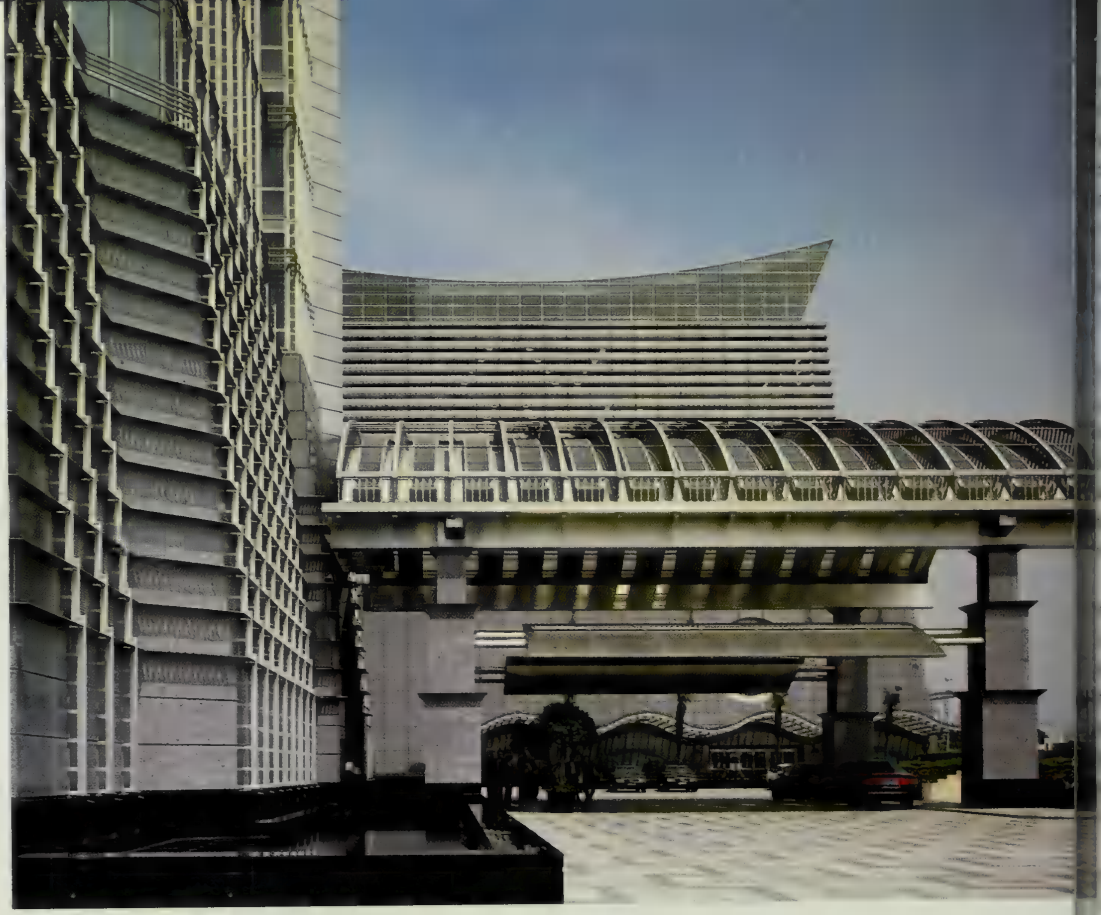
What Jin Mao's developers—the China Shanghai Foreign Trade Centre Company—wished to build at Pudong was nothing less than its crown jewel, the alpha skyscraper in China's most celebrated experiment in urbanism. A Sino-American team of architects and engineers led by SOM has delivered just that. Jin Mao rises like a clean silver bolt above Pudong. The building's curtain wall—a bristling hide of steel mullions, aluminum fins, and reflective glass—not only reduces solar gain but also gleams in the sun, making the tower conversant with the sky.

The tower is lithe and slender, with a biaxially symmetrical shaft and an aspect ratio of 8-to-1. A series of setbacks taper the tower into 13 segments, each diminishing in height by a factor of eight until the top floor is reached, 88 stories above the street. The preponderance of eights is no accident. The number is auspicious in Chinese culture and commonplace in building design throughout Asia (the Petronas Towers in Kuala Lumpur are also 88 stories tall). When spoken in Chinese, "eight"—or *ba*—sounds like *fa*, a character that signifies wealth or fortune. "Eight-eight" thus resembles *fa fa*, an emphatic expression of prosperity.

Thomas J. Campanella is a Fulbright fellow in Hong Kong, where he is working on the forthcoming book Eighteen Holes in the Good Earth: Dispatches from the New Chinese Landscape.

Project: *Jin Mao Tower, Shanghai, China*
Architect: *Skidmore, Owings & Merrill LLP—Adrian Smith, AIA, design partner; Thomas Fridstein, FAIA, project partner; Raymond Clark, MEP partner; D. Stanton Korista, Paul DeVylder, Thomas Scheckelhoff, Steve Hubbard, AIA, Peter Weismantle, AIA, Lou Oswald, AIA, Mark Sarkisian, Paul Kwong, Sherman Leong, Bob Blohm, Brian Schirmer, Al Khoshaba, project team*
Associate architects: *East China Architectural Design and Research Institute (construction); Shanghai Institute of Architectural Design and Research (preconstruction)*

The building's curtain wall is an assertive combination of steel mullions, aluminum fins, and reflective glass. The building's skin changes character with varying atmospheric conditions and the time of day (opposite). A porte cochere in front of the office tower provides protection from the sun and rain (right).





HISTORY

The significance of the Jin Mao building is bound to Shanghai's past. In spite of being China's largest city, metropolitan Shanghai is neither very old nor particularly Chinese. A feudal walled city founded in the 13th century, Shanghai was one of several "treaty ports" opened after the Opium War as a "concession" to the victorious European forces. Western architecture soon dominated the city, and the Bund—Shanghai's famous waterfront avenue along the Huangpu River—became a rampart of Neoclassicism.

The metropolis that evolved after 1850 was for the most part an alien import, however grand. For years, planners dreamed of a new, Chinese metropolis. Today, that city is ascending at Pudong, an urbanistic riposte to the humiliations of the colonial past. If Shanghai is to be China's flagship metropolis for the next century, Pudong is its prow, or, as Deng Xiaoping, China's late paramount leader described it in a celebrated "inspection tour" in 1992, the "head of the dragon." Its centerpiece is the Lujiazui Finance and Trade Development Zone—Pudong's "Golden District." Based on a loose combination of schemes submitted in an international urban design competition (which included star architects such as Richard Rogers, Dominique Perrault, Massimiliano Fuksas, and Toyo Ito), a master plan for the area was prepared by the Chinese authorities in the early 1990s. A large Technicolor crystal model was unveiled, promising an urban future straight out of the 1926 Fritz Lang motion picture *Metropolis*. Few urbanists took it seriously.

Still, the Lucite confection is fast becoming reality. Several years ago, the "Oriental Pearl" television tower alone dominated the horizon; today, more than 100 new skyscrapers jostle for the sky. For the most part, these are a derivative lot, a carnival of monuments imported from around the globe.

To Jin Mao architect Adrian Smith, AIA, these buildings are suffering an identity complex. "They are kind of bizarre," he says. "The Chinese architectural community has, by and large, turned its back on its own past. Architects in China are striving to create a 21st-century metropolis, and there seems to be this feeling that to do so, history must be discarded."

The people of Shanghai themselves pull no punches when it comes to critiquing bad architecture. Pudong's new convention center, opened in time for last year's Fortune Global Forum, features a high-tech facade on the Pudong side, a Neoclassical elevation facing the Bund, and two massive globes in between. Locals have labeled it "Shanghai's ugliest building." *T.J.C.*

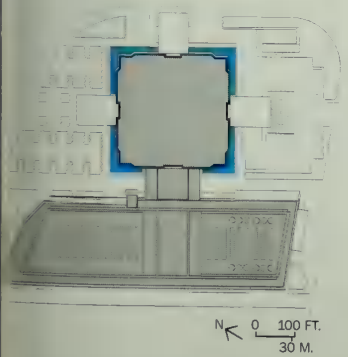
While Jin Mao's segmented articulation employs Chinese numerology to good effect, its real purpose is to evoke the form of a Chinese pagoda. Adrian Smith, AIA, the SOM design partner in charge of the project, sought a building "that in some way evoked the culture and memory of China, that was unmistakably Chinese." He was most impressed by China's ancient pagodas and the way these often served as "a center of gravity" in villages. "The pagoda struck me as a fitting reference point from which to begin thinking about the design of a Chinese skyscraper." Visually, the pagodic form lends momentum to Jin Mao's shaft, thrusting its mass skyward and creating an impression of lightness.

Formally, the pagoda is a legitimate model for a tall building. But how defensible is it on a philosophical plane? Is a Buddhist religious icon appropriate for a mammon temple in an officially godless land? For that matter, is it really necessary that a modern skyscraper, wired to the global bitstream, genuflect to the past to gain cultural legitimacy? In Asia today, history is often invoked to temper or validate the drive toward modernization—a particular irony in the People's Republic, where the past was once vilified as decadent and bourgeois.

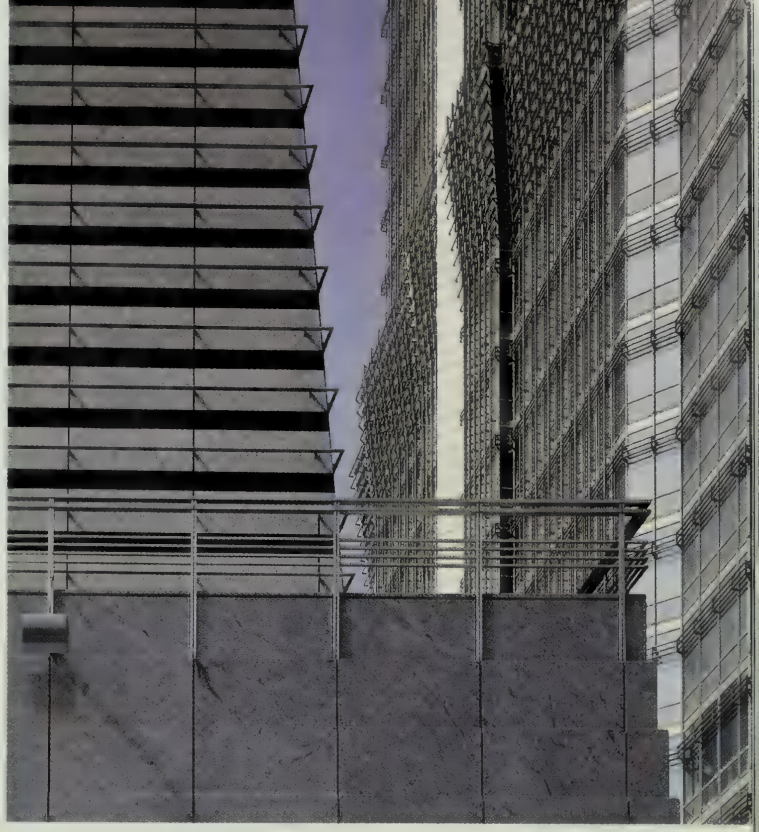
Dr. Ho Puay-peng, an architectural historian at the Chinese University of Hong Kong, has no problem with Smith's use of the past. Though the function of early pagodas was indeed religious, they were later used for secular purposes. "By the Ming dynasty, pagodas were often built for *feng shui* reasons," he says, "to block an evil force or to create, in effect, a hill where geomancers determined one was needed." Pagodas were also associated with success on the imperial examinations, because they were thought to "draw into alignment the literary constellations."

The infusion of historical reference in the design of a skyscraper is among architecture's most perilous endeavors. Hungry to pay homage to a culture they barely understand, designers often rummage through the past like blind men in an attic. The results are sometimes laughable: In Beijing, countless office towers wear neotraditional Chinese rooftops meant to "sinofy" otherwise Modernist boxes. Jin Mao, though, successfully fuses past and present, melding the two with subtlety and restraint. To Dr. Ho, the pagoda reference is "a clever use of imagery for a high-rise building; there is a certain logic to it." The building is certainly popular with the people, and this is, after all, the People's Republic of China. Nearly every individual interviewed on the street said Jin Mao *da xia* ("big tower") is a symbol of the city and a point of pride for the Chinese.

Jin Mao is composed of two buildings: the 88-story tower and a squat 6-story podium building hunkered beneath it. The tower contains 52 floors of commercial office space, with a total gross floor area of 1.33 million square feet. Office floor-plate areas range from 25,466 to 30,110 square feet, and the floor-to-ceiling height is 8.9 feet. The floors are column-free and use the international standard 1.5-meter (4.9-foot) planning module (as does the exterior facade, to facilitate partitioning along the perimeter). Among the first commercial tenants are Dow Jones and Dresdner Bank.



Above the office zone is the Grand Hyatt Shanghai, which begins on the 54th floor and features a spectacular 31-story Guggenheim-on-steroids atrium. The hotel is easily one of Asia's finest, with 555 well-

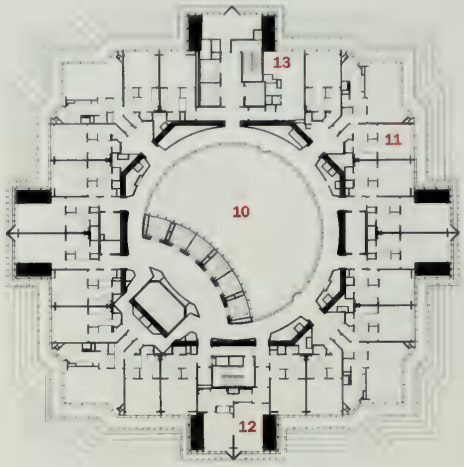




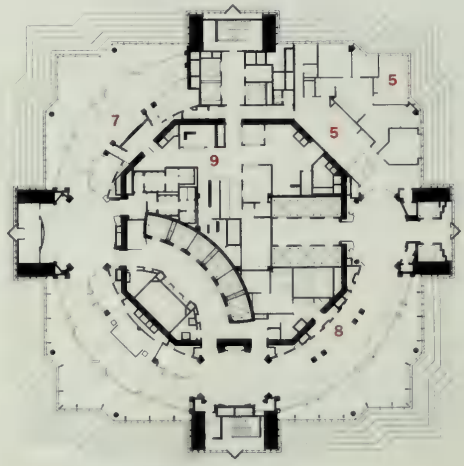


The six-story podium building (above and opposite) contains a shopping mall, cinema, food court, and conference facilities for the Grand Hyatt. The 52 office floors range in size from 25,000 to 30,000 square feet. The hotel starts on the 54th floor and rises 31 stories.

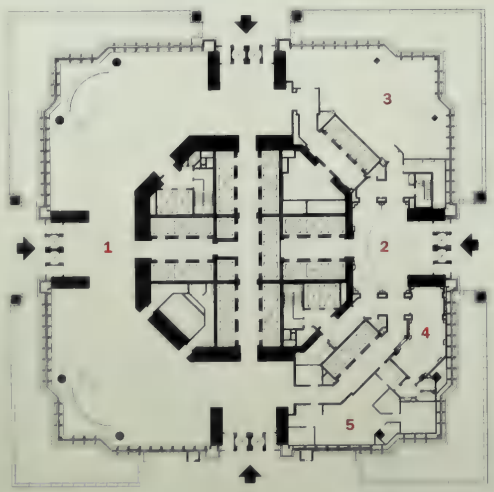
1. *Office lobby*
2. *Hotel lobby*
3. *Tenant*
4. *VIP lounge*
5. *Hotel offices*
6. *Multitenant corridor*
7. *Restaurant*
8. *Hotel reception*
9. *Kitchen*
10. *Atrium*
11. *Guest*
12. *Suite*
13. *Housekeeping*



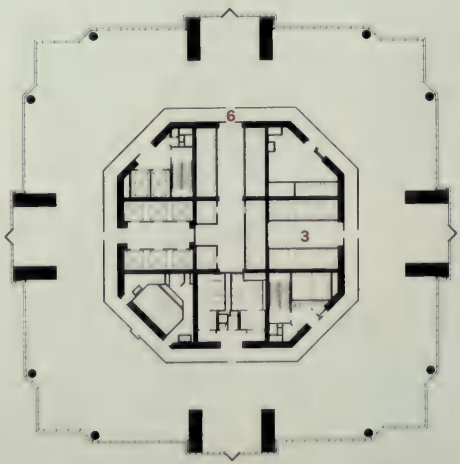
TYPICAL HOTEL FLOOR (LEVELS 60-64)



54TH FLOOR (SKY LOBBY)



GROUND FLOOR



TYPICAL OFFICE FLOOR (LEVELS 18-23, 26-29)



The angled geometry of the office-tower lobby (above) contrasts with the great curves of the 31-story hotel atrium (opposite). The building's structural heart is a great concrete core surrounded by an array of eight composite megacolumns. One of the hotel's restaurants (right) offers a partial view of the structural system and a sweeping view of Shanghai.



appointed rooms, nine restaurants, a swimming pool on the 57th floor, and breathtaking vistas of metropolitan Shanghai.

The podium building, with its roofline reminiscent of an open book, contains a shopping mall and cinema, food court, and the Grand Hyatt's conference facilities and ballrooms. The building is an effective counterweight to the tower, giving the ensemble a satisfying equilibrium. Though the designers didn't intend for it to happen, people have begun referring to the two as a "pencil and open book"—a reference amplified by the literary association of pagodas.

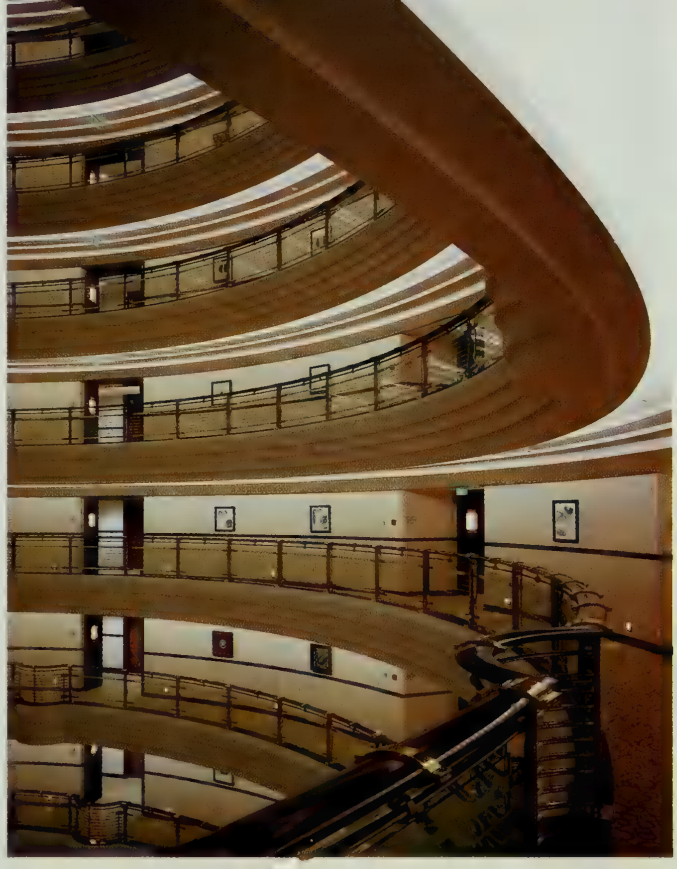
If there is a weak link here, it is the connection between the podium and the tower. While the tower has its own lobby, the main entrance to the complex—and the most heavily used—is between the two. The expectation here is for an arrival experience equal in majesty to that of the tower's entry. Sadly, there is no such grandness. Rather, visitors are delivered into a low-ceiling lobby where a Pepsi sign, set above the escalators to the food court, is the most memorable feature. What makes this so frustrating is that the podium's lofty atrium lies to the left, just out of sight behind a low-slung bridge—the result of a last-minute design change to meet code requirements. "The two sides of the atrium

FROM THE TOP OF JIN MAO, THE GRAND SCALE OF CHINA'S AMBITION IS EVIDENT, AS IS THE SPEED OF CHANGE.

had to be linked," explains Smith; "I had a circulation ring on every floor but that one, because I wanted to keep the view to the atrium open." He says further, "I was disappointed by the change, but on the other hand it adds an element of surprise."

The structural heart of Jin Mao is a great core of concrete surrounded by an array of eight composite megacolumns with smaller steel columns between them. The core, hexagonal in shape, contains a cruciform diaphragm wall, within which are the elevator shafts and mechanical equipment. Two sets of massive outrigger trusses, each 26 feet across and occupying two floors, secure the megacolumns to the central core, providing lateral rigidity.

It is from the top of Jin Mao that the grand scale of China's ambition becomes evident and that one begins to comprehend the speed at which the nation is hurtling out of its past. At the building's base, old villages lay in tatters, in the process of being cleared for the next cluster of skyscrapers. Great piles of wrecked matter burn all night, besotting Jin Mao's high-performance windows with the soot of centuries-old wood. When the first sunbeams of the new century greet Shanghai, it will be through Jin Mao's soaring glass, and its veil of ashes. ■





Credits *(continued)*
Interior designer (hotel): *Bilkey Llinas Design*
Consultants: *Shen, Milsom & Wilke (acoustical); Fisher Marantz Renfro Stone (lighting); Rolf Jensen & Associates (fire/life safety/codes); Woodward-Clyde, Inc. (geotechnical)*
General contractor: *Shanghai Jin Mao Contractor*

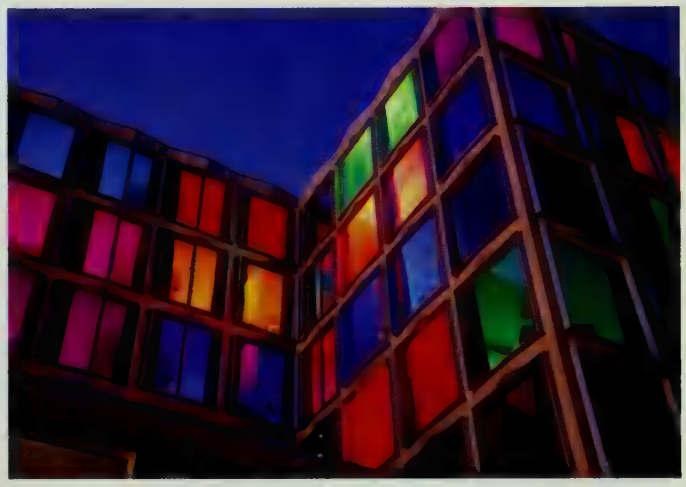
Sources
Anodized aluminum curtain wall: *Josef Gartner & Co*
Glazing: *Guardian*
Fluorescent fixtures on office levels: *Thorn*
Maple paneling in office-tower lobby: *Imperial Woodworking*
Acoustical ceiling tiles: *Armstrong and USG*

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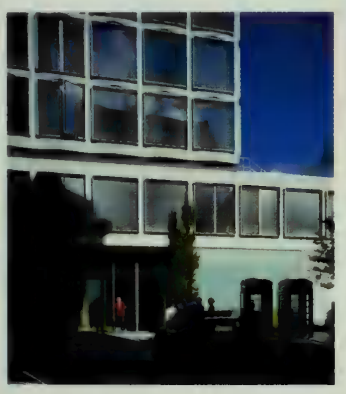
The hotel lobby features a quirky melange of hand-carved wooden stools from the Philippines, steel benches upholstered in tufted silk, gilt molar teeth, plus an oversized vase. The exterior of the former office building (opposite) comes alive with interior lighting at night.

Philippe **Starck** once again unbottles his joie de vivre to a bracing effect in **ST MARTINS LANE HOTEL** near Covent Garden.



By Suzanne Stephens

All glamorous capital cities get stuck with architectural losers, and London has more than its fair share of dreary modern postwar architecture. The situation is salvageable, however. As the irrepressible French designer, Philippe Starck, along with savvy American hotelier Ian Schrager and his in-house architect, Anda Andrei (originally from Romania), demonstrate, it's possible to transform a dowdy office building into a smart international caravansary. From the moment the seven-story, late-1960s building opened last fall as a 204-room hotel in the Covent Garden area, it was a smash. Dressed-in-black arty types fill its restaurants and bars, mill around the lobby, and retire to rooms that begin at a relatively affordable $200 a night. Black, or gunmetal gray (the shade of dress for the hotel staff), goes particularly well in the spare white environment, drenched here and there with brilliant splashes of color. Indeed, color and light are crucial design motifs. They deftly and quickly transform a simple, neutral interior into a vibrantly hot mise-en-scene for people who are beyond cool.



"This is the first modern hotel," Starck hyperbolically asserts about his design concept. "Modernity is transparency and energy and dematerialization," he adds. "We played with light and color to give it life. We wanted a boiling pot with all the energy of the city." For those who only feel at home in staid, posh old-world surroundings with burnished oak paneling, this may not be the venue of choice. The Connaught it's not. But to the design team's credit, there is more to the place than color and light. The hotel ambience succeeds as a knowing mix of whimsy, energy, and serenity, especially in the bedrooms.

It used to be so blah

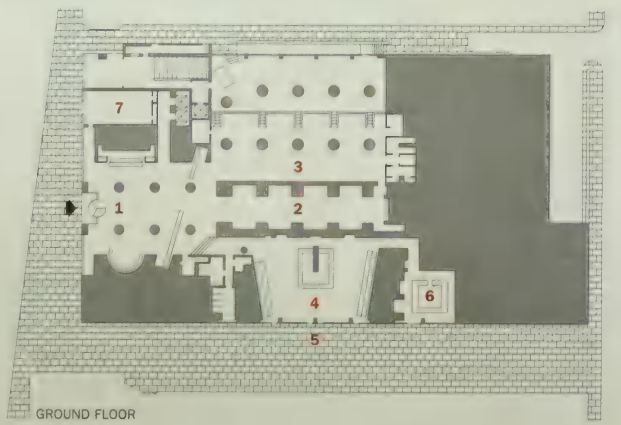
The original office building, a concrete column-and-slab frame with precast-concrete-and-glass exterior walls could not have been more conventional. Andrei kept the basic columnar grid and gutted the rest, using drywall construction for rooms, and adding baths, new mechanical systems, and new elevators to the 180,000-square-foot hotel. She also replaced the glass-and-spandrel panels in the exterior wall with 9-by-9-foot double layers of glass.

In the lobby Starck and Andrei beefed up six interior columns to 5-foot, 3-inch diameters to subdivide this open space into seating and reception areas. The fat columns are plain, most walls are white, and the Portuguese-limestone floor is off-white. Starck gave the spaces in and around the columns distinct personalities, however, using color, light, and idiosyncratic furniture of varying scales. The lemon-yellow hue and theatrically placed lights, along with the quixotic assortment of furniture, offer cheeky ebullience to the potentially severe setting. While the surreal ensemble (which includes molar teeth stools and kitschy gnomes) could border on cute, the effect is actually not overdone, partly because the giant columns prevent you from taking in all the objects in one glance. Instead, you come upon these set pieces episodically.

An axial route through the lobby leads from the front entrance to the Light Bar at the rear. Here, four 25-foot-high openings punched between the ceiling beams borrow space from an unused portion of the

Project: *St Martins Lane Hotel, London*
Client: *Ian Schrager London Limited*
Designer: *Philippe Starck, overall design; Bruno Borrione, design team*
In-house architect: *Anda Andrei, president of design, Ian Schrager Hotels; Helka Puc, Kirstin Bailey, Anne Ondrovic, Kim Walker, Natasha Ziff, Hilary Gilford, Leila Fazel, Courtney Friedlander, Sara Adams, design team*
Production architect: *Harper Mackay Ltd.–David Harper, director; Peter Korkolls, Peter Gilbertson, Jef Smith, team*
Consultants: *Ove Arup & Partners, mechanical; Isometrix (Arnold Chan and Gary Campbell), lighting*

1. *Lobby*
2. *Light Bar*
3. *Asia de Cuba*
4. *St M Brasserie*
5. *Outdoor cafe*
6. *Sea Bar*
7. *Shop*



Lemon-yellow glass encloses the limestone reception desk; a Louis XV-style concierge desk is tulipwood, while the Salvador Dali "Leda" chair is cast bronze. As the plan (left) indicates, the public spaces are carved out of the building's footprint; the remainder provides for back-of-the-house operations. The Light Bar's black slate floors and gray walls (opposite top) are dramatized by double-height voids, lighted and painted different colors. St M Brasserie (opposite bottom) features cumaru wood and tan leather banquettes.



second floor. Dramatically punctuating the long rectangular room, these light wells are painted and illuminated in coruscatingly intense colors, casting a phosphorescent glow over the white bar furniture.

To one side of the Light Bar is the Asia de Cuba restaurant, which Starck designed to be festive, idiosyncratic, and elegant. Its hefty columns are girded with decorative objects or shelves with books and photographs, or just plumped up with tufted silk. Their rounded forms, echoed by semicircular banquettes at the rear of the restaurant, create eddies of space for tables, edged at the front by a standing bar.

On the other side of the lobby, a wide, shallow stair leads up to the "modern" bistro, St M, and beyond that, the small white marble Sea Bar. St M's clean lines are warmed by expanses of African cumaru wood and simple tan leather banquettes. As Andrei explains, "It is supposed to have a computer-generated look." The effect succeeds, without draining the place of detail, largely because of the rich, natural grain of the wood and leather.

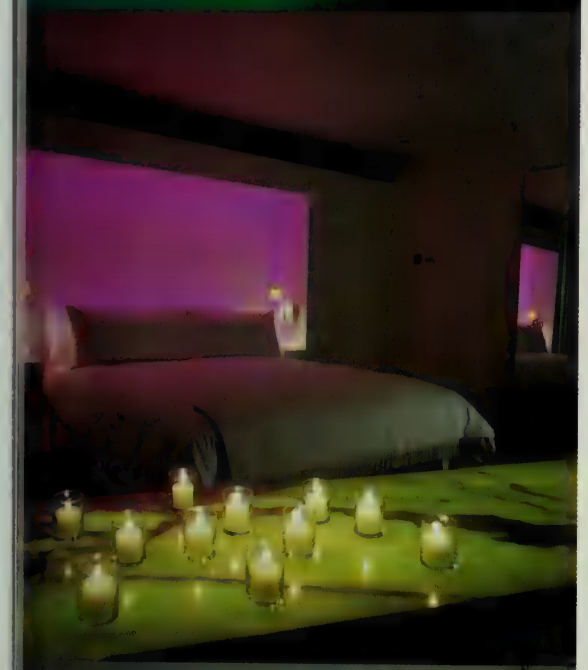
The bedrooms are simple and spare, in part because of the all-



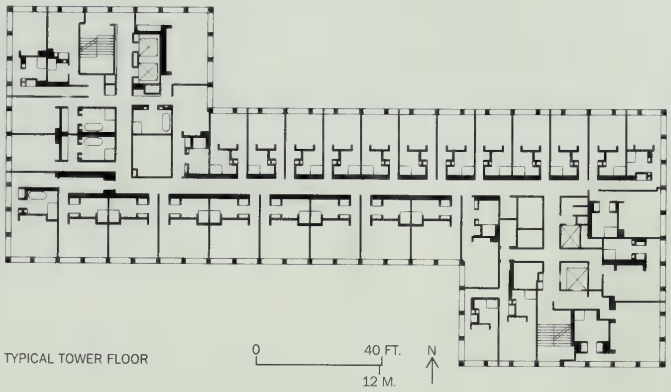
A forest of tall tables in the Rum Bar at the front of the Asia de Cuba restaurant (above) creates a permeable boundary to the dining room. Here the fat columns are laden with shelves of photos, books and other artifacts. Floors are bleached maple, with Scandinavian-style wood-laminate chairs.

In the bedrooms (opposite), headboard lights shift colors from warm yellow to deep purple. The views out serve as the "art," emphasized by the white furnishings, including a Starck-designed cross-shaped armoire for the TV, a bottom-lit onyx table, and a lucite chair.









white color scheme and the simple lines of the Starck-designed furniture. New floor-to-ceiling glazing gives each bedroom light and panoramic views: Two bays of glass amplify the sense of space for the typical 350-square-foot room. Corner rooms benefit from glass walls on two sides, particularly where three and a half bays of glass stretch along one side. Because the hotel tower, five stories in all, sits on a two-story base, the architects could create rooms with small walled-in gardens on the second floor.

Enhancing the mood

The spartan rooms are quickly "decorated" with a flick of the headboard light switch, which offers each guest a range of colors from soft sunrise yellow to deep purple. Candles, lit at night by the staff, enhance the mood. Clearly, much of the hotel is about ambience. In the bedroom, guests modify the environment according to personal disposition. "The style of tomorrow is freedom of choice," Starck pronounces. "You are no longer a consumer but an actor." (In case you prefer to act out your fantasies by reading or working, the proper lamp light is also available.)

Starck, Schrager, and Andrei work together well. With the Royalton, the Paramount in New York, the Delano in Miami Beach, and the Mondrian in L.A., the team's modus operandi has emerged: buy an existing building, not in its prime, work with its architecture, add Starck's design panache, hire an attentive hotel staff, and voila! Although St Martins Lane is the group's first overseas hotel, the trio is already at work on Sanderson's, another hotel renovation of a 1950s building in London, scheduled to open this spring. They also have designs on the larger Miramar in Santa Monica, Calif., and the Henry Hudson in New York City. Such rapid growth may create pressures, particularly because they rely on surprise rather than a formulaic theme. So far, they haven't run out of ideas. ■

Sources

Exterior cladding: *TW Ide LTD glass (ground floor); Robertson & Vogue Ltd, metal (ground floor); Parry Bowen Ltd. metal and glass panels (upper floors)*
Interior glass (yellow): *Concepta*
Ceiling: *Burgess Ceiling Ltd.*
Cabinetwork: Ruddy Joinery (lobby), Sherlocks Interior Contracting Ltd, (rooms).
Floor and wall tile: *Portuguese moleanos limestone*
Furniture: *Cassina; Philippe Starck (custom)*
Bar: *Corian surfacing for counter and stools*

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South elevation (above) shows one of the building's glass-enclosed gardens. Colorful awnings put shade to work to cool the sun-baked library interior.

Behnisch, Behnisch & Partner let the environmentalists at the IBN-DLO institute in Holland practice what they preach.

By Tracy Metz

Stress and anxiety evaporate the moment you enter the building that the German firm Behnisch, Behnisch & Partner designed for the Dutch Institute for Forestry and Nature Research (IBN-DLO) at an agricultural university in Wageningen. As a pilot project in sustainable and user-friendly architecture for the Dutch Ministry of Housing and the Environment, it is—literally and figuratively—as green as they come. Form and function, inside and outside flow together in this delightful building, where earth scientists conduct their research in appropriately Eden-like surroundings.

Built on a former cornfield, the IBN-DLO building is shaped like an E, with two glazed gardens between the offices in the three "fingers." The north-facing spine of the E houses the laboratories, the only mechanically ventilated spaces. The south-facing fingertips house a library, where on bright days a warm light falls through pink and orange sunscreens, a meeting room, and a small restaurant. A patterned concrete path, part of American artist Michael Singer's contribution to the project, leads from the entrance past the reception area, across the office wings, and through the green oases, weaving indoors and outdoors together.

Stefan Behnisch, the partner-in-charge of the project, describes the design as a low-tech building with a high-tech result. He has given workers much more control over their surroundings—a great leap further than standard, operable windows. Each office has a door with a glass fanlight looking onto the hallway and a sliding glass door revealing one of the garden atria. Because there is no mechanical ventilation, the workers air their offices themselves by opening doors and windows when they leave. The workplaces are cooler in the morning than in an office building with traditional HVAC, but as the computers are switched on, the temperature rises. Most of the year, there is a heat surplus, and efficient cooling saves more energy than efficient heating.

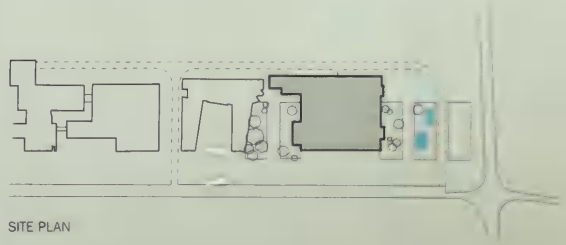
In summer, users help cool the building by opening doors in the glass-garden facades. The gardens provide so much thermal insulation that it was possible to make 65 percent of the office's outer walls out of clear (rather than tinted) glass. Consequently, the offices are largely lit by daylight. Sensors monitor light intensity, and, above a certain level, cause aluminum-laminated roof sunscreens to unfold to prevent overheating.

Tracy Metz, RECORD*'s Amsterdam-based correspondent, is a journalist at the newspaper* NRC Handelsblad *and writes about architecture and landscape.*

Practicality prevailed in the architect's choice of sunscreens and glass roofs: they are off-the-shelf components of modern greenhouses. Other parts of the building, however, demanded fundamental research into materials and the effect of their production and recycling on the environment. "Our office is known for green design," says Stefan Behnisch, "but this went further than anything we had done before." All the wooden interior surfaces were made of short pieces rather than long planks so that as little of the tree as possible was wasted; wherever possible, local woods, such as European larch, were used to reduce transport costs. And moss-covered roofs help reduce solar gain.

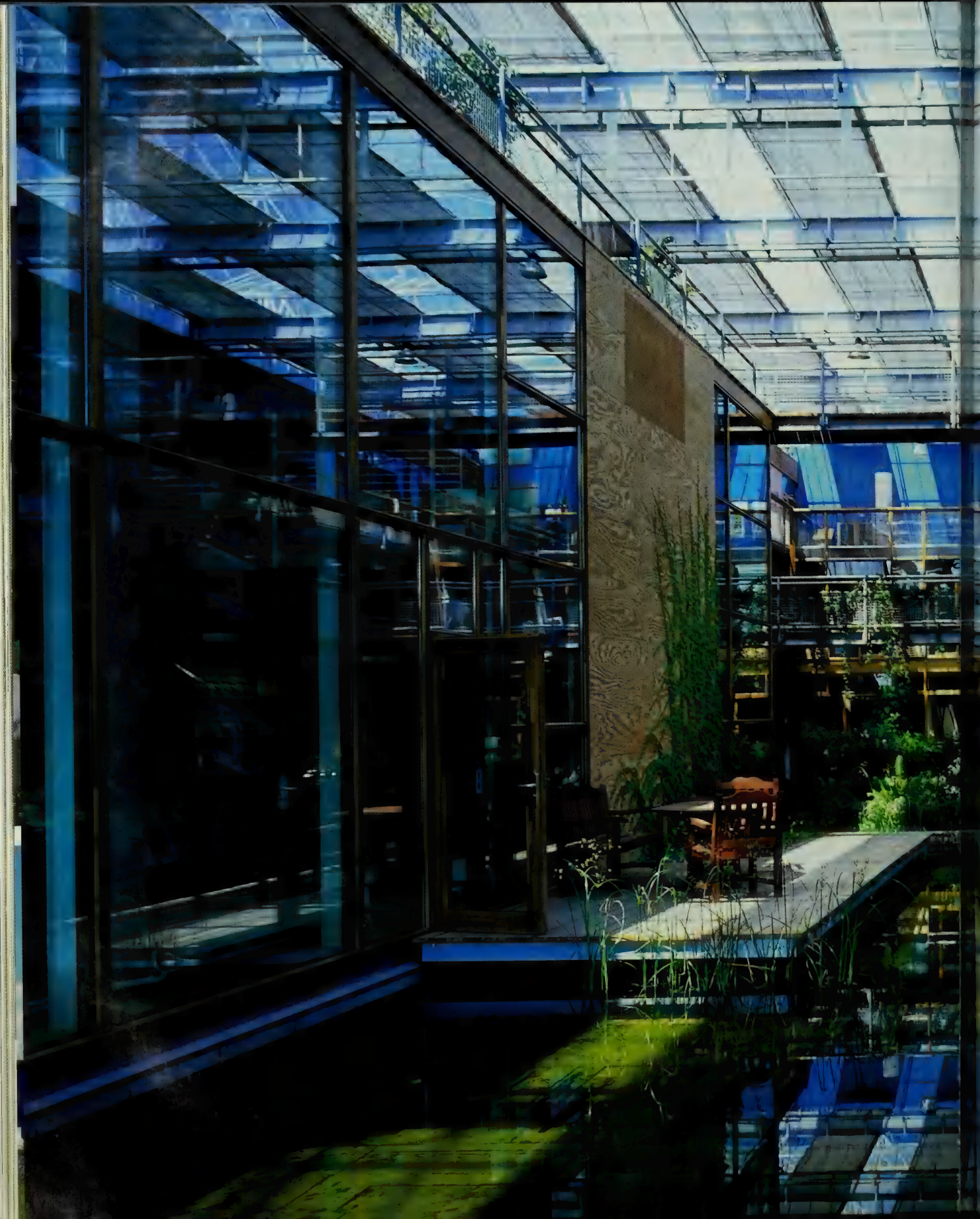
Each garden has its own ambience, based on a concept devised by Vermont-based artist Michael Singer. "My goal was to unify the outdoor and indoor architecture by means of the pathway and gardens," says Singer. "I wanted to create something that would give this new building a sense of time, an older texture, as if it were built around something that had always been there." To that end, he used wood that had been stressed and coated with dirt for the trellises in the garden atria and the structure in the meeting garden. Concrete pavers are rough, as if found on-site and reused, and come in 12 different patterns. Some of these patterns are what he calls "a reflection on gridlike notions of space and structure," others are fragments of the building's architectural drawings.

The gardens are not just to be admired, but to be treated as an extension of the workplace: for lunch, for meetings, or simply for reading.



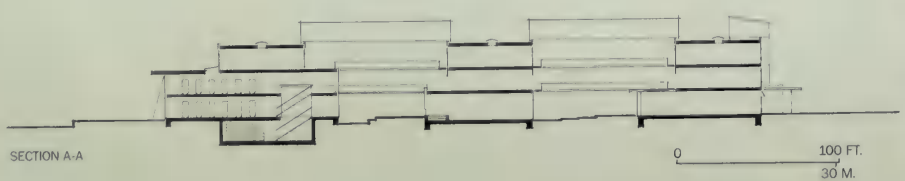
SITE PLAN

Project: *Institute for Forestry and Nature Research (IBN) Wageningen, The Netherlands*
Owner: *Department for Agricultural Research (DLO)*
Architect: *Behnisch, Behnisch & Partner—Stefan Behnisch, partner-in-charge; Ton Gilissen, project leader; Ken Radtkey, Martin Werminghaussen, Brook Muller, Andreas Ditschuneit, Yianni Doulis, Martin Schodder, project team*



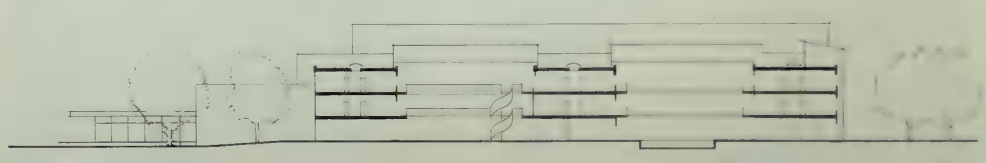


Each of the two internal gardens acts as a thermal buffer between offices and the outside environment. This allows 65 percent of the offices' walls to be clear glass and lets workers rely on daylight for most internal illumination. The western garden (these pages) has a lush planting scheme. Horizontal sunblinds with heat-reflecting foil can be unrolled below the glass roof.



Artist Michael Singer designed a wood-and-concrete arbor for the west garden (above) and a water sculpture for the east garden (right). The Dutch landscape-design firm Copijn devised a plan for the complex that contrasts a lushly planted garden with a more spare and formal one. A small terrace of the library provides a tranquil spot to read, meet with colleagues, or relax.



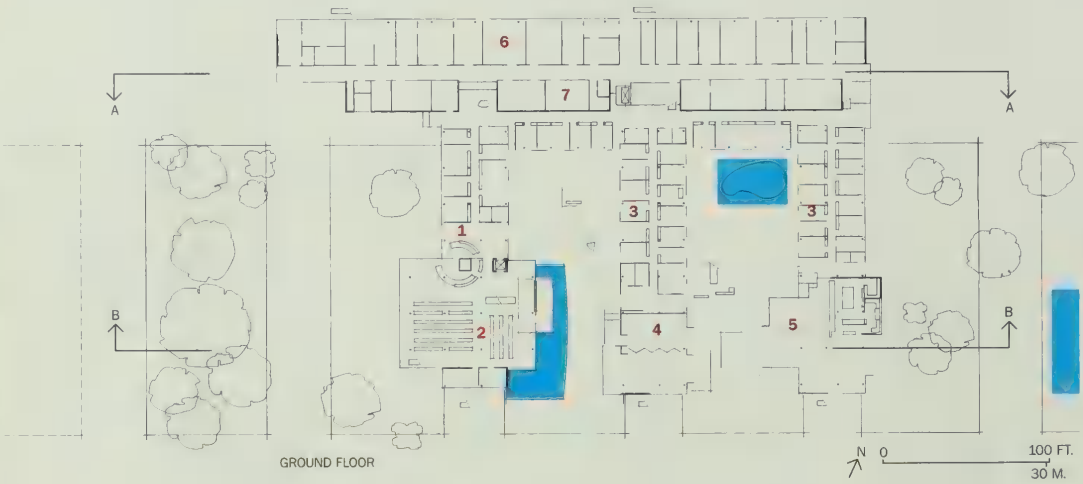


SECTION B-B

0 100 FT
30 M



SECOND FLOOR



GROUND FLOOR

Although the restaurant is small, it has a seating area in one of the internal gardens (below). The library is a two-story space, which also has direct access to a garden (opposite top). Workers can control the temperature of their offices by opening or closing windows and sliding glass doors onto the internal gardens (opposite bottom).

1. *Reception*
2. *Library*
3. *Office*
4. *Conference center*
5. *Restaurant*
6. *Standard laboratory*
7. *Climatized laboratory*
8. *Roof terrace*



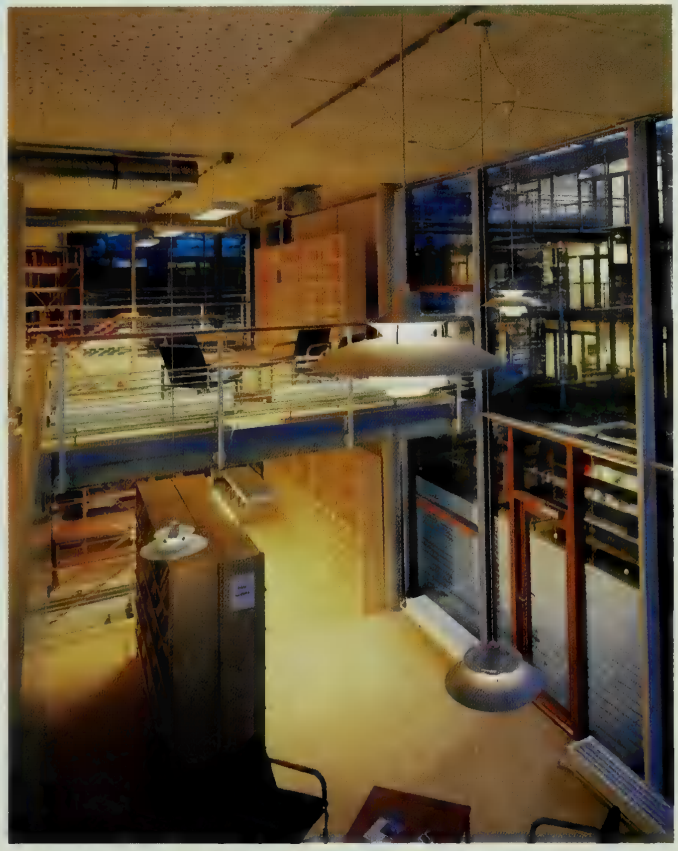
The first, westernmost garden is luxuriant, "almost a rainforest," says Singer, where water flows inaudibly. The second garden, the more public of the two, is sparer, with a lighter palette and more succulent plants, and the added luxury of an audible flow and drip from a large flat surface into the dark recesses of the pool below.

As the designer of the plantings, together with the Dutch firm Copijn, Singer was gratified that the client was amenable to experimentation. "We were researching conditions, seeing what would grow. That, after all, is what the IBN-DLO does: study the effects of human intervention on nature." In summer, about 1,500 gallons of water a day evaporate into the atria, helping to cool the building. Part of the runoff water from the roof is used for a gray water circuit for the toilets, but most of it is held in a basin north of the building and piped into the pools.

Creeper vines are gradually taking over the plywood wall of the library's poolside terrace, and the delicate but persistent tendrils of a passion flower vine are making their way along the aerial walkway traversing the western garden. Nature is never far away here. The walkways along the offices have handrails, of course, but metal mesh has been replaced with knotted nets hanging from mountaineering clips—a small but telling detail enhancing the building's laid-back nondesign quality. Is this atmosphere of semipermanence typically green? Behnisch distinguishes two main schools of thought in green design. "There is the Norman Foster view, which says you can solve ecological problems with more technology, or the Soleri view that says: no technology. We're in the middle, but my sympathy is with Soleri. I don't want to change our lives or go back to the Stone Age, but if we are prepared to accept that it's warmer in summer and cooler in winter, I am convinced that we can attain an acceptable degree of comfort by following the rules of nature."

"I AM CONVINCED THAT WE CAN ATTAIN AN ACCEPTABLE DEGREE OF COMFORT BY FOLLOWING THE RULES OF NATURE."

Ultimately, the most sustainable thing about the IBN-DLO building may be the example it sets. "The technology is very old and very new at the same time," says Behnisch. "The concepts—local materials, natural ventilation—have been around for centuries, we merely adapted them to modern times. But the execution was like building the Eiffel Tower, or the first skyscraper: we figured everything out from scratch." ■





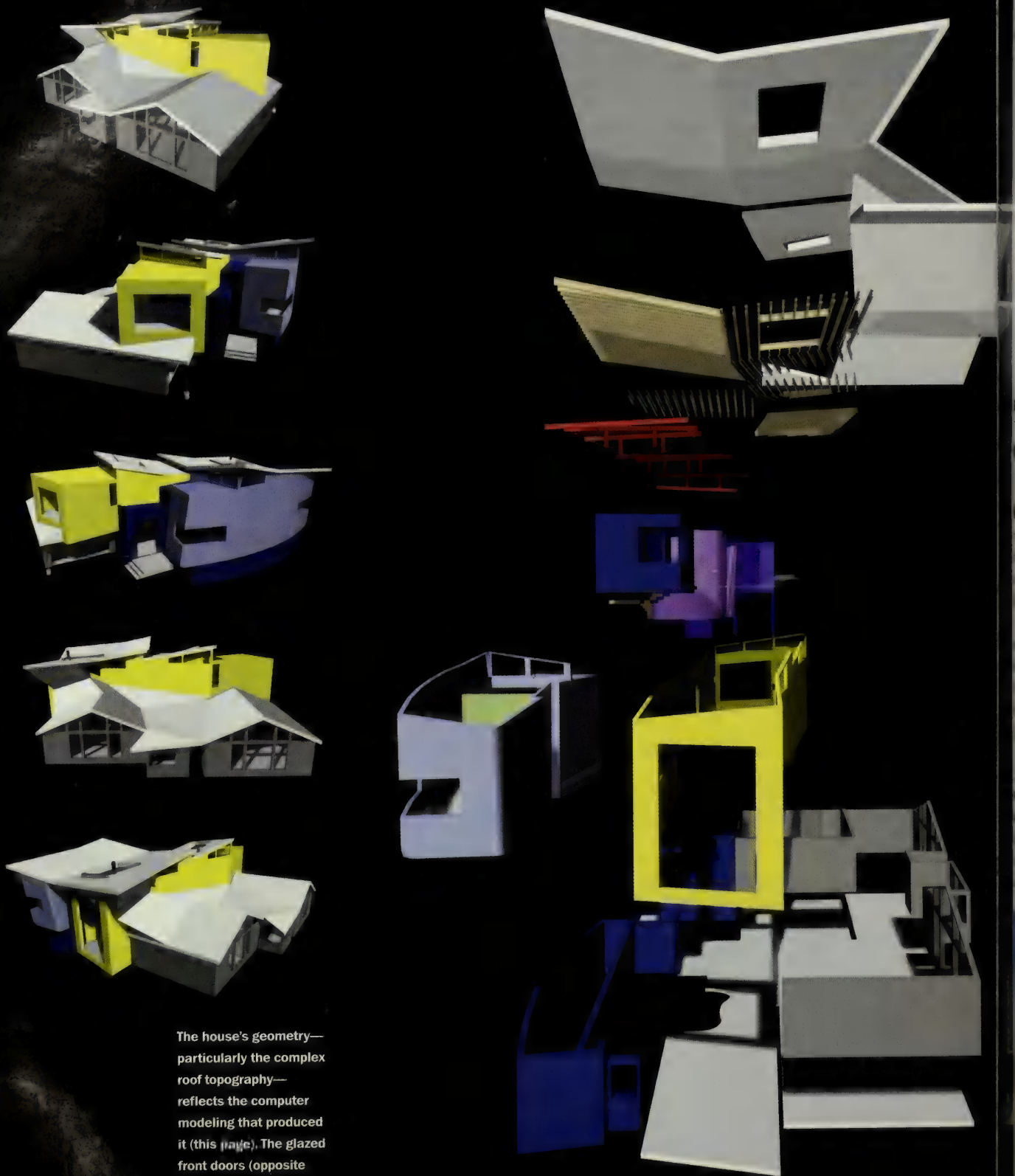
Credits (continued)

Engineers: *Arohnson Consulting Engineers V.O.F.(structural); Deerns Consulting Engineers B.V. (mechanical, electrical); Fraunhofer Institute for Building Physics (energy); DGMR Consulting Engineers B.V. (acoustical)*
Consultants: *Copijn Tuin en Landschaps Architecten (interior garden planning)*
Artists: *Michael Singer, Krijn Giezen*
Contractor: *Dura-Bouw B.V.*

Sources

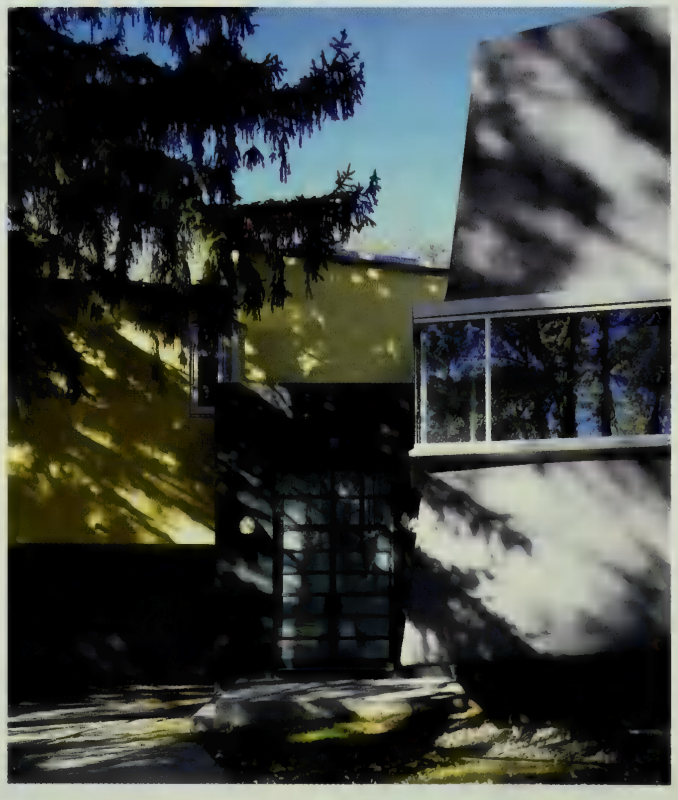
Curtain wall: *Custom by Nelissen Metaalindustrie B.V.*
Wood facades: *DeGroot Vroomshoop B.V.*
High-efficiency glazing: *Al van Veen Glasspecialist B.V.*
Single-glazed skylights: *Pilkington*
Greenhouse roofing: *Prins Bleyswijk B.V.*
Gypsum acoustical ceilings: *Nolteg*
Gypsum walls: *Calmont B.V.*
Paints: *Lansink Schilderwerken B.V.*
Railings and stairs: *Geert Matthijssen B.V.*

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The house's geometry—particularly the complex roof topography—reflects the computer modeling that produced it (this page). The glazed front doors (opposite top) and clerestory windows, as in the rear elevation (opposite bottom), contribute to a luminous interior.

Garofalo **Architects** blows the roof off a standard suburban ranch house with the **MARKOW RESIDENCE**



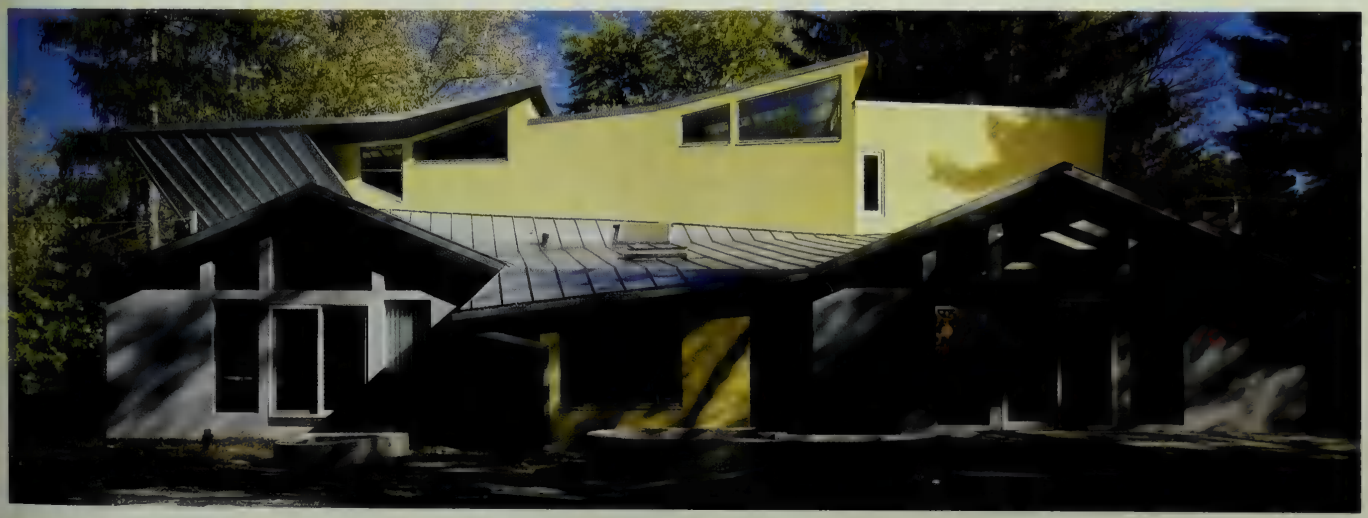
By Sarah Amelar

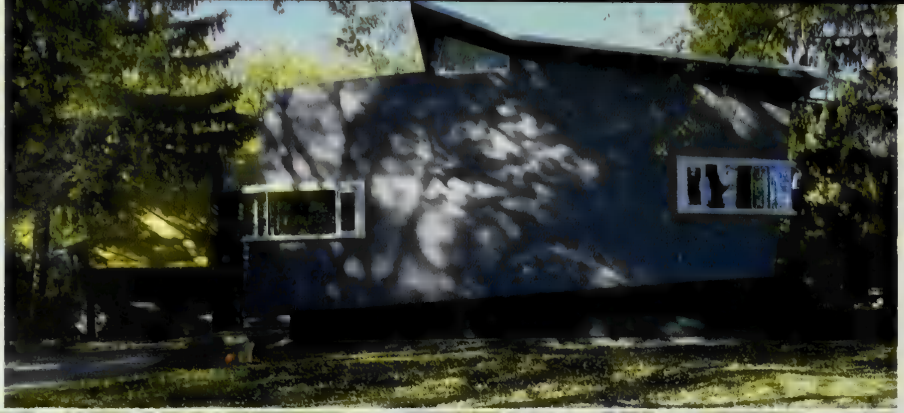
In a neighborhood of discreet neo-Tudor houses with tidy front-yards and symmetrically pitched roofs, Garofalo Architects' Markow Residence rises as a dynamic presence. Its skewed, tilted, hovering, and bowed volumes—quietly composed in the front and more eruptive toward the back—seem to swell beneath the undulant folds of a blanketing metal roof. "What *are* we doing in the suburbs?" wondered Doug Garofalo, AIA, seven years ago, when he first ventured into the Windy City's outskirts to reincarnate a ranch-style house.

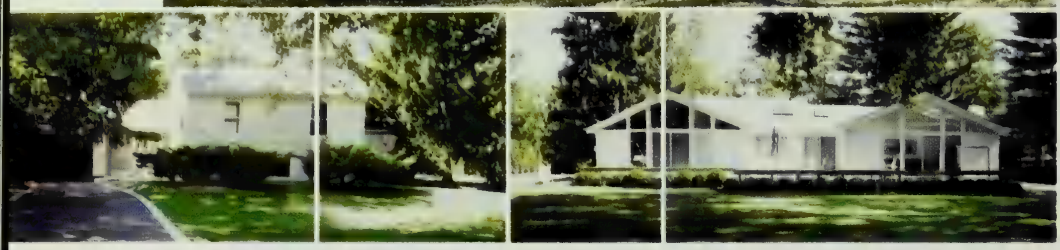
Since then, his small Chicago firm has revisited this question repeatedly while transforming seven homes, most recently the Markows' in Prospect Heights, Ill. "The notion that the suburbs are bad," says Garofalo, "often comes with architectural training." Yet unexpectedly, he's discovered formal and intellectual fodder in the hinterlands of Middle America, making architectural interventions that prod the cliches of domestic conformity.

Garofalo, who designed the Korean New York Presbyterian

Project: *Markow Residence*
Architect: *Garofalo Architects—Douglas Garofalo, AIA, principal; Ellen Grimes, Minkyu Whang, Randall Kober, and Christopher Goode, design team.*
Engineer: *Thornton Tomasetti*
Steel fabrication and consultation: *Anton Metalworks*
General contractor: *Juniper Construction*
Computer imaging: *Robert Brobson*







While Garofalo, 41, isn't out to dynamite the suburbs, or obliterate all recognizable features of the buildings he expands, his projects involve radical reconfigurations. "We scrutinize the houses we're given," he says, "and look for eccentricities to exploit, often taking cues from the original structural and plumbing systems."

The Markows wanted to keep the twin gables they'd added a decade before to the back of their split-level 1962 house. Budgetary constraints convinced them to add on to the existing 2,000 square feet, rather than erect a new home. (Typically costing less than $100 per square foot, Garofalo's renovations tend to be more economical than ground-up construction of comparable quality). Otherwise, Andrew Markow and his wife, Aleksandra, gave their architect tremendous aesthetic freedom. "We saw this as an adventure," Mr. Markow says. "It was not just about building a house."

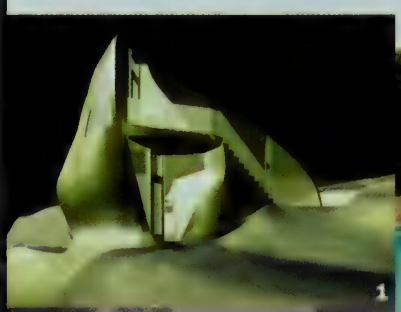
Church with Michael McInturf and Greg Lynn, is not the first architect to graft onto the iconic suburban home, to blast out the walls and blow off the tops of vinyl-sided colonials, low-slung ranches, and prefab saltboxes. One of the best-known suburban reinventors, Frank Gehry, FAIA, began shaping his own unconventionally collaged house—spliced with chainlink and corrugated steel—in Santa Monica, Calif., in 1977. And a new wave of architects with an alternative vision has been transforming traditional houses across the country. In New Jersey, David Hotson, for example, is extending a gambrel-roofed house with a cubist riff on the original barn-like forms, while in Connecticut, Kolatan/Mac Donald Studio is morphing a globular outgrowth for a standard colonial cottage (below).

Because such transformations often entail lower budgets and speedier construction schedules than houses built from scratch, this work frequently falls into the hands of young practitioners. And ideally, with youth comes a spirit of invention—if not an outright rebellious streak.

Indeed, Garofalo's clients have defied classic suburban stereotypes with forward-looking attitudes toward architecture. Having left the city in search of good schools and backyards for their kids, they are settled in and not fixated on resale values. Therefore, the architect discovered, they tend to be less architecturally conservative than city dwellers. Also, reflecting the growing ethnic diversity of suburbia, his clients have been mostly foreign-born (the Markows are from Poland). These young immigrants, says Garofalo, are not trying to blend in; instead, they eschew the local vernacular—identifying it with Old World traditions—in favor of newer forms.

The Markow house is striking for its formal mutations, drawn from the "genetics" of the surrounding architecture. While the continuous folded roof is a distant relative of the conventional neighboring roofs, it plays off them: its quasi-dormer, for example, pops out opposite a real

HYBRID SUBURBAN HOUSES BY GEHRY, KOLATAN/MAC DONALD, AND DAVID HOTSON





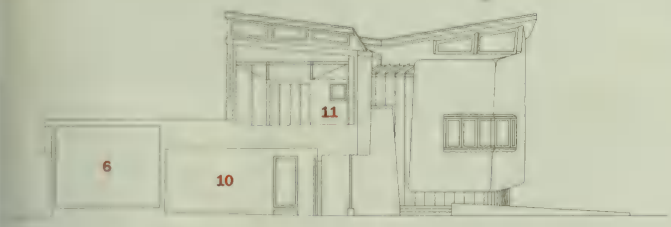




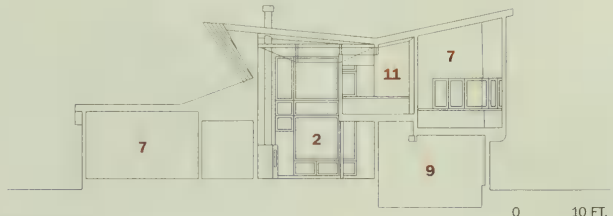
1 and 2. Kolatan/Mac Donald Studio, *Raybould House*, Fairfield County, Conn. (construction anticipated in 2000)

3. David Hotson, Architect, *Athanassiades Residence*, Princeton, N.J. (currently nearing completion)

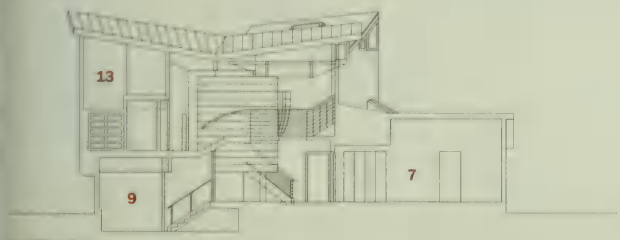
4. Frank O. Gehry, *Gehry Residence*, Santa Monica, Calif. (1977-78; 1991-94)



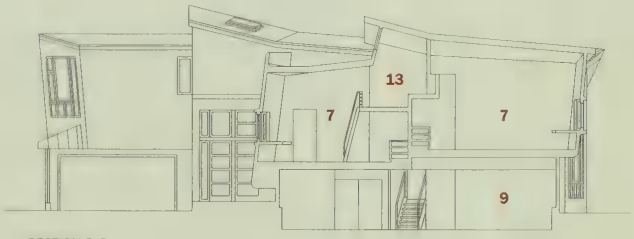
SECTION A-A



SECTION B-B



SECTION C-C



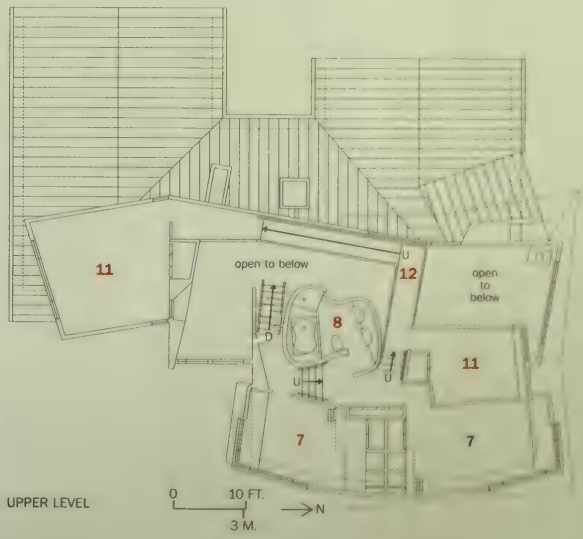
SECTION D-D

The relatively quiet street facade (opposite top) begins to suggest the more dynamic eruption of form toward the building's back. Grayish purple, blue, and yellow hues depart radically from the original front elevation (opposite bottom, left). Garofalo retained the twin gables that the client had added earlier to the rear elevation (opposite bottom, left).

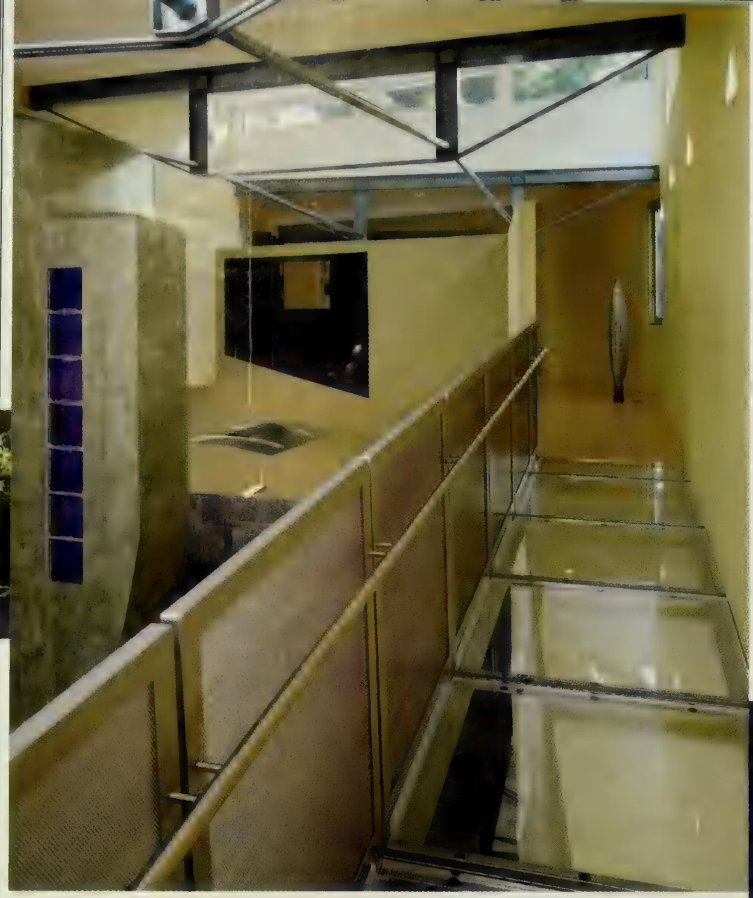
1. *Foyer*
2. *Living*
3. *Utility*
4. *Breakfast*
5. *Kitchen*
6. *Dining*
7. *Bedroom*
8. *Bath*
9. *Recreation*
10. *Garage*
11. *Study*
12. *Catwalk*
13. *Loft*



ENTRY LEVEL



UPPER LEVEL







dormer next door. And the roof's elongated double-V profile in back provides an inverted counterpoint to the preexisting twin gables beneath it.

To create spacious communal areas, a study, a breakfast room, and more generous bedrooms, Garofalo added 1,000 square feet and demolished an existing glass-block entry piece. A new, cantilevered, curved volume in front holds upstairs bedrooms, while a rectilinear tubular element, forming a central spine, contains a two-story foyer and living room, and upstairs study. Clusters of new programmatic elements occupy distinct idiosyncratic volumes, further differentiated by exteriors stuccoed in deep contrasting colors: yellow for communal spaces and purple for bedrooms.

With this massing, Garofalo comments on the nature of suburbia. Rejecting the common view of such neighborhoods as banal and homogeneous, he has come to appreciate their visual and demographic diversity, seeing suburbia as simultaneously cohesive and rife with contrasts. He intended the Markow Residence—with its multiplicity of forms and all-embracing roof—to echo abstractly this duality.

Responsive to its setting yet distinct from it, the house gently touches the front of its zoning envelope, but breaks with the familiar front-back orientation of the suburban streetscape. Its exterior angles are dictated not by neighborly alignments, but by small shifts that open the inside to views and oblique rays of light.

The roof's underside is as geometrically complex as its exterior. The two-story communal areas rise to a multifaceted ceiling, supported by steel trusses, all at slightly different orientations. "I think of it," says Garofalo, "as a tent held by guy wires." At the entry level, the traditional suburban compartmentalization of spaces is gone: the light-filled foyer, kitchen, living, breakfast, and dining rooms flow into one another, winding around a sculptural split core, which conceals a utility room below and a bathroom above. Diagonal vistas penetrate interior zones, slipping between stair rails and fragmental partitions, to the outside.

A partially ramped, glass-floored catwalk, crossing above the foyer, links the upstairs bedrooms to a study. Playing off the house's original split-level design, the second-floor steps and ramp spiral around the core, prolonging the four-foot ascent from bedrooms to study. The elevated walkway's transparency and slope have a slight edge of danger, gently threatening to set one off-balance. This isn't the path of staid suburbia—we're not in the home of Ozzie and Harriet. This midwestern ranch house has been jolted and split at its seams.

But the building somehow fits its setting. Among its tawny stone and brick neighbors, this purple, blue, gray, and yellow presence is not jarring. The saturated colors are muted. The house's scale, siting, and proportions reflect a close reading of context and, thus, allow for many things simultaneously. Full of contrast, the architecture remains a balanced whole. Even the basketball hoop beside the curving purple facade and the barbecue grill out back hardly seem out of place. ■

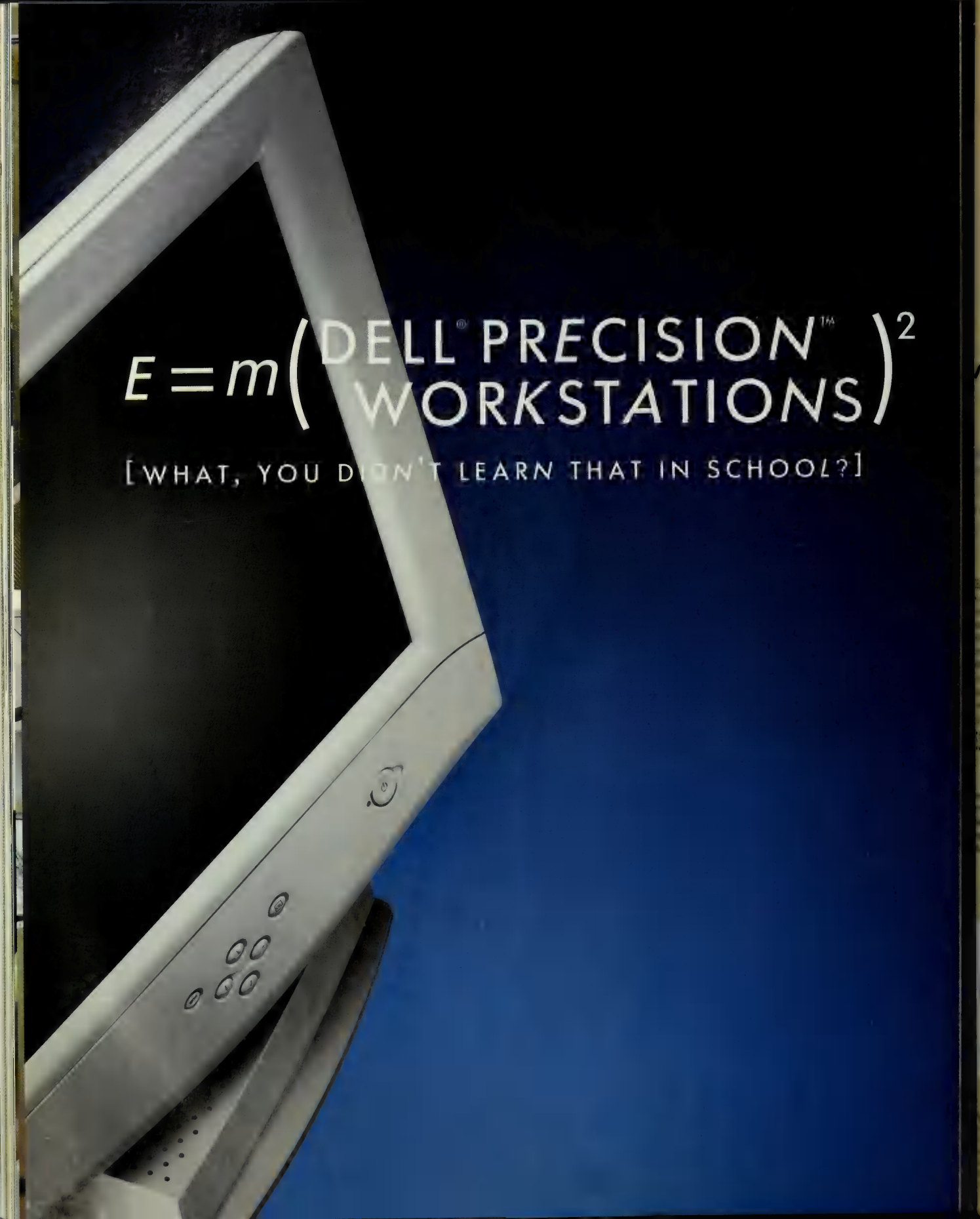
Sources

Curtain wall: *Kawaneer*
Synthetic stucco: *Dryvit Stucco*
Roofing: *GS Roofing Systems, Peterson Aluminum*
Paint: *Benjamin Moore*
Sliding doors: *Pella*
Fiberglass panels: *Kalwal*
Wall sconces: *Zelco*

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A wall crossing diagonally beneath the glass catwalk marks the house's original perimeter, while the core's blue panes bring light into the shower stall (opposite top). Skewed trusses, fragmented partitions, and tilted ceiling planes animate the interior (opposite top and bottom). Skylights, clerestories, and large windows illuminate the living room (this page). Within the sculptural core (this page) the second-floor bathroom has curving walls (opposite center).


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The Anti-Bilbao

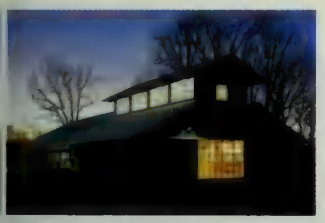
WHILE THE LARGE MUSEUMS GET ALL THE PRESS, SMALL MUSEUMS OFFER AN INTIMACY AND ACCESSIBILITY THAT THE BIG GUYS CAN'T MATCH.



1.

Henley-on-Thames, England

With the craft of a boatmaker, David Chipperfield Architects creates an homage to rowing, Britain's oldest team sport, in a lovely, riverside setting.



2.

Seagrove, N.C.

Frank Harmon Architects designs a museum that honors vernacular architecture and reflects the importance of pottery to the local economy.



3.

East Winterslow, England

A modernist intervention on a pastoral Georgian country estate by Munkenbeck + Marshall is the backdrop for a stunning private collection.



4.

Chibougamau, Canada

Using an existing mine as the architectural form, Julien Architectes allows its audience to experience what it was like to work as a miner.

By Elizabeth Harrison Kubany and Suzanne Stephens

At this moment, in the aftermath of openings of the Guggenheim Bilbao and the Getty Center in Los Angeles, the word museum conjures up an architectural extravaganza. Like the Metropolitan Museum of Art, the Louvre, or the British Museum, these monumental urban destinations, housing international art collections, have, more than any other type of museum, taken over the public consciousness. And this is where the money is. Billions of dollars are currently being spent on the expansion or creation of art museums. According to a list recently published by the *Los Angeles Times*, the 10 largest museum projects currently under way in the United States—all devoted to art—total more than $1.5 billion in construction. These mega projects include the renovation and expansion of New York City's Museum of Modern Art, the Museum of Fine Arts in Houston, and the Asian Art Museum in San Francisco.

In addition to size and cost, the most striking similarity they share is their universality. The buildings are often designed by international architects for collections that may also have global appeal.

Diminutive in scale

While these large projects capture most of the attention, a parallel trend is the proliferation of small museums. According to Edward Able, president and CEO of the American Association of Museums (AAM), the vast majority of museums in this country are not large; more than half have annual operating budgets under $100,000. (An operating budget of $1 million or more qualifies an art museum as a large museum, according to the AAM.)

The construction of small museums accelerated greatly during the 1950s, '60s, and '70s, as people began to see them as a way to celebrate publicly what was special about their communities and regions. This grassroots expression of local culture may explain their continued popularity for they help provide citizens with a sense of identity and place. "Small museums draw strength from the communities in which they are built and give richness back to those communities," says Richard Koshalek, president of the Art Center College of Design in Pasadena, Calif. The communal link explains in part why more people have been visiting museums in recent years: The December 1998 issue of *Museum News* estimated that the visits to U.S. museums during that year were 865 million, the highest ever.

Whereas large museums may be devoted to a broad range of subjects within specific categories (such as art or science), small muse-

ums can concentrate on a single subject, and even an unusual one at that. In the preface to her book *Towards a New Museum*, Victoria Newhouse writes that "one intriguing aspect of the current proliferation of museums is the 'museumification' of seemingly every phenomenon known to humanity, from Sverre Fehn's Glacier Museum in Norway, to Hans Hollein's Vulcania, the project for a museum about volcanoes in France's Auvergne region." Today, you can visit museums as esoteric as the Shin-Yokohama Ramen Museum (devoted to the Japanese noodle) or the Philadelphia Insectarium (founded by a former exterminator and featuring insects and rodents from around the world).

Strange but true

Even if museums devoted to idiosyncratic subject matter strike us as unusual (or crazy), they do have a history. Small museums displaying objects, oddities, or art have direct roots to the collections pertaining to

EVEN IF MUSEUMS DEVOTED TO IDIOSYNCRATIC SUBJECT MATTER STRIKE US AS UNUSUAL, THEY DO HAVE A HISTORY.

antiquities and natural science that were stored in cabinets in the homes of the affluent merchants, bankers, and, of course, royalty, during the Renaissance. By the end of the 15th century, the interest in antiquities and the rise of humanism had prompted scholars, merchants, and businessmen in Italy to begin systematically to accumulate numerous objects, including small relics, cameos, and coins. Special cabinets were set aside in closetlike rooms where the owner could study them, or show them off to interested colleagues. In 1521 Paolo Giovio, a historian in Como, was already opening up his collection of portraits to fellow humanists.

By the 16th century, the number of cabinets displaying porcelains and pictures, as well as shells, fossils, stones, and other scientific oddities had proliferated. The humanist scholars, in turn, influenced the formation of similar collections in royal and papal courts. Soon, kings and emperors, who often had piled up troves of art in their castle strongrooms, became enthralled with the idea of displaying the work. In the late 16th century, Holy Roman Emperor Rudolf II was known for his *Kunstkammern* (cabinets of art) as well as *Wunderkammern* (cabinets of curiosities). By the late 17th century, August the Strong, the Elector of Saxony and King of Poland, amassed enough to fill cabinets in seven rooms in his palace in Dresden.

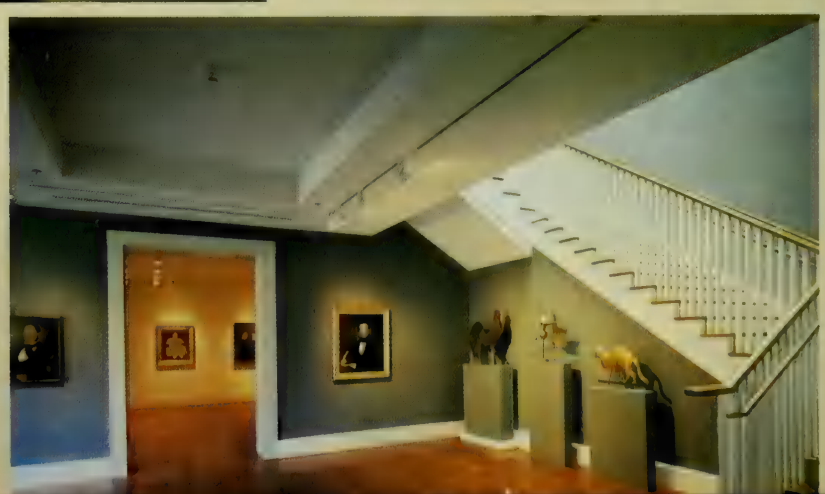
Eventually these ever burgeoning collections would form the first museums. Indeed, in the 1630s, John Tradescant's collections of beasts, outlandish fruit, insects, minerals, and other objects in his house in England became a small museum where anyone could go for a small price. Its 4,000 items were catalogued, and in 1686, through a change of hands, became the beginnings of the Ashmolean Museum at Oxford.

A grassroots phenomenon

It is not surprising that small museums today have developed around







Frederick Fisher & Partners designed this 9,000-square-foot addition to the Colby College Museum of Art in Waterville, Maine (above and right). Reflective of the modest local vernacular architecture, the wing showcases 150 pieces of American art.

pecialized collections. The desire for an immediate connection with he work on display requires a scale available only in an intimate space. Jo wonder, then, that Edward Able has observed: "These small muse-ims tend to have a more active relationship with their communities han the traditional static museum designed for passive viewing."

As is evident in the four examples on the following pages, the ense of place is so powerful that the projects—both from an archi-ectural and a content point of view—would seem out of place nywhere else. David Chipperfield's River and Rowing Museum in

:N THE ELECTRONIC AGE, BUILDINGS 1AVE THE POWER TO BECOME THE LOCI :OR FRAGMENTED COMMUNITIES.

Henley-on-Thames, with its exterior clad in horizontally laid oak pan-ls, emerges out of its Oxfordshire context. Its purpose—to tell the istory of Britain's oldest team sport—is special to this town enowned for its regatta.

The North Carolina Pottery Center, designed by Frank Harmon, FAIA, similarly reflects its locale in its architecture and display. The barnlike shapes of the two buildings—one for exhibitions and one or education—with its monitor roof and large porch, respectively, cho the vernacular architecture of local family. The indigenous mate-ials used throughout the project—Atlantic white cedar and recycled eart pine—reinforce this tie to the region. Moreover, pottery has been an economic cornerstone since the discovery of the clay-rich soil's unsuitability for agriculture.

Munkenbeck + Marshall's modern, glass-and-concrete design for Roche Court seems, on its face, less tied to the surroundings. The tiny gallery is nestled between the house and orangery of a landmarked late-Georgian country estate. As a public gallery for the viewing of a private collection, the museum is closely linked to the rather simple beginnings of the museum as we know it today. In the 16th century, Newhouse notes, painting collections were shown in long corridors of English country houses and French chateaux. (An explicit forerunner of Roche Court could be the cast iron and glass picture gallery that Lord Berwick had John Nash add to his house in Attingham in 1805.)

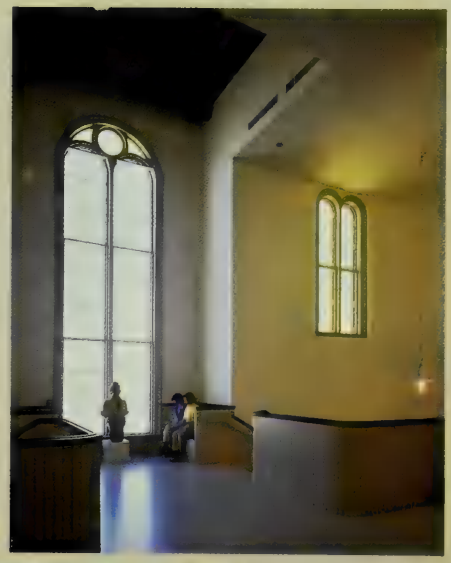
Of all the projects discussed below, the Chibougamau Mining Interpretation Center by Julien Architectes is the most firmly rooted (literally) in its location. By building a mining interpretation center inside a defunct mine in the Canadian wilderness, the architects mimicked the experience of a miner, allowing visitors to understand a lonely and dangerous activity that has been this region's primary sustenance.

While the Bilbaos and Gettys have their place, small museums present the opportunity to embody a particular sense of place and affect us profoundly. Their mission may be more modest, but their accessibility, special programs, and often regional subject matter can touch us and instill a sense of local pride. In the electronic age, these buildings have the power to become the loci for fragmented communities otherwise lacking a physical public space for cultural expression. ■



ocated in a remote area of he Yukon, the Tr'ondek lwech'in Cultural Centre by Maurer Kobayashi rchitects (opposite top ight and above) is a tribute o the Han people. Because he structure itself incorpo-ates references to various uilt forms the Han used, uch as their fish-drying rames, skin-and-stick ents, and basket traps, the uilding itself is a museum o the people.

Housed in several new and historic buildings, including a converted church, the Farnsworth Art Museum by Schwartz/ Silver Architects in Rockland, Maine (right and below), shows the work of three generations of the Wyeth family: N.C. Wyeth, his son Andrew Wyeth and his grandson Jamie Wyeth. A land-scaped area provides views that recall favorite subjects of the Wyeths.





River & Rowing Museum
Henley-on-Thames, England

IN A PICTURESQUE RIVER TOWN, DAVID CHIPPERFIELD CRAFTS AN HOMAGE TO BRITAIN'S OLDEST TEAM SPORT.

By Robert A. Ivy, FAIA

Architect: *David Chipperfield Architects—David Chipperfield, principal; Renato Benedetti, Alec Gillies, Genevieve Lilley, project architects*
Client: *River & Rowing Museum Foundation*
Consultants: *Whitby, Bird & Partners (structural); Furness Green Partners (services); Whitelaw Turkington (landscape); Land Design Studio Ltd. (exhibitions); Applied Acoustic Design (acoustical); Eric Maddock (lighting); Atelier (graphics); Davis Langdon Management (project management); Norwest Holst Construction Ltd. (contractor)*

Construction cost: *$5.1 million (phase 1); $3 million (phase 2)*
Size: *7,340 square feet (phase 1); 2,712 square feet (phase 2)*
Completion date: *1998*

Sources:
Windows: *Jandor Hansen*
Doors: *Jandor Hansen*
Curtain wall: *Jandor Hansen*
Exterior cladding: *Henry Venables Hardwoods Ltd.*
Hardware: *Allgood Architectural Hardware*
Flooring: *Henry Venables Hardwoods*
Lighting: *Erco*
Lighting controls: *Trilectric Ltd.*

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Program

Henley-on-Thames, a picturesque town whose world-famous regatta looms large in Britain's history, received an unanticipated gift. Unsolicited, a private donor chose to fund the construction of a museum that would include a collection of historic work boats and tell the history of Britain's oldest competitive team sport. The stories of rowing and of the town itself are inextricably linked and share a narrative thread throughout the galleries and exhibits.

Solution

London-based architect David Chipperfield placed the museum just down the road from the city on a riverside site surrounded by willows and green fields. Raised above floodstage on concrete pilings, the modest structure recalls the hulls of sculling boats. From the exterior, the strong parallel forms of the two-story building lie hidden by vegetation, that exposes only the pitched roofs at each end. Defining the boundary between the natural and the man-made, a watery rill runs by the front entry like a moat, alongside a straight row of trees.

The horizontal structure combines Modernist ribbon windows and a strong plinth with familiar, vernacular elements, such as wood siding and metal roofs. Ramps connect the gravel-strewn parking lot to the first level, which seems to float

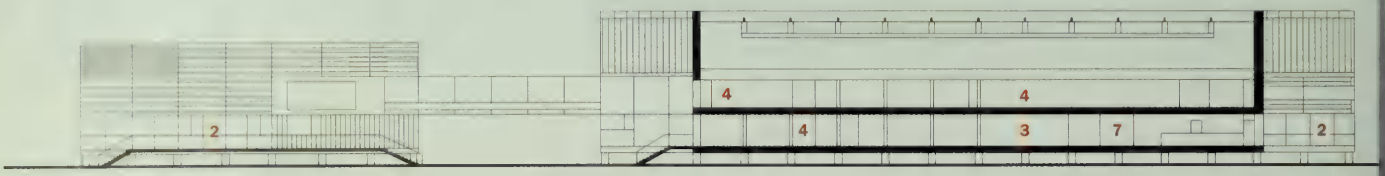




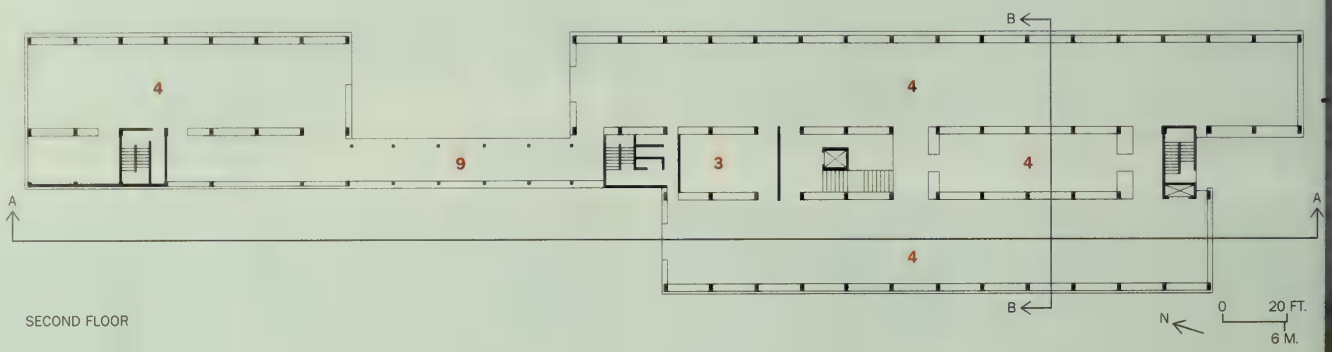
SITE PLAN



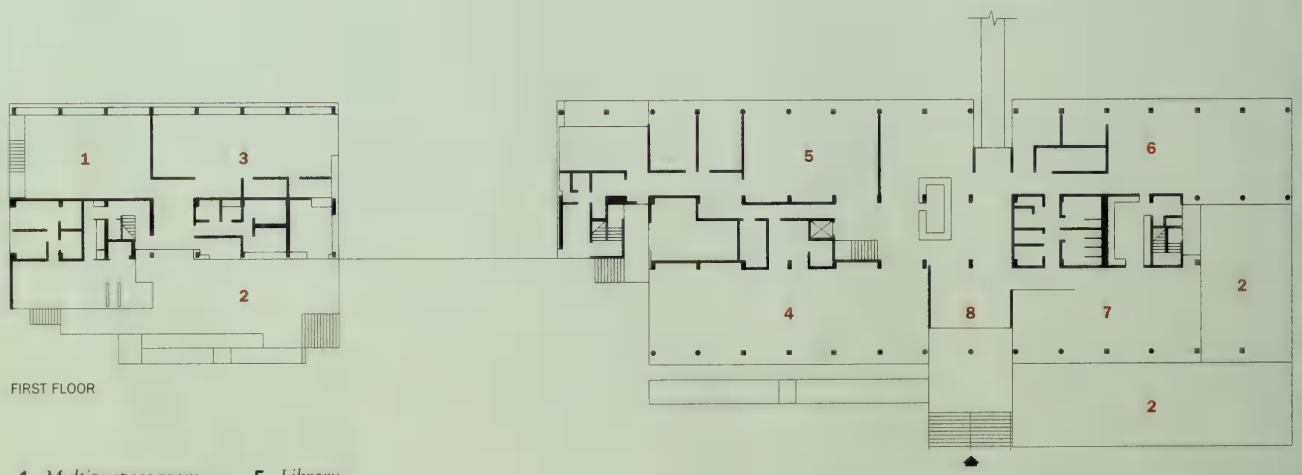
The horizontal structure combines Modernist ribbon windows and a strong plinth with vernacular elements, such as wood siding and metal roofs (above). Strong detailing outlines the intersections of windows and doors with the wall plane (opposite). A horizontal bridge connects a later addition to the main structure (below).



ELEVATION / SECTION A-A



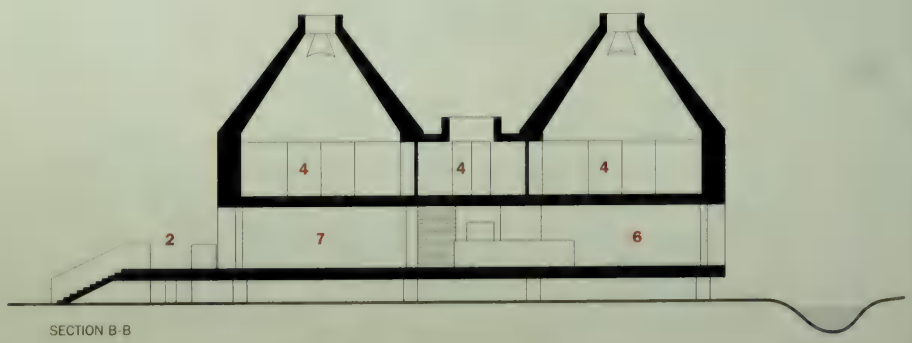
SECOND FLOOR



FIRST FLOOR

1. *Multipurpose room*
2. *Terrace*
3. *Storage*
4. *Gallery*
5. *Library*
6. *Classroom*
7. *Restaurant*
8. *Foyer*
9. *Bridge*

The strong roof forms resemble the hulls of sculling boats (opposite top). Ramps, which run from the parking lot through rows of trees and above a watery rill, bring the visitor to the entrance (opposite bottom).



SECTION B-B


EDUCATION AREA

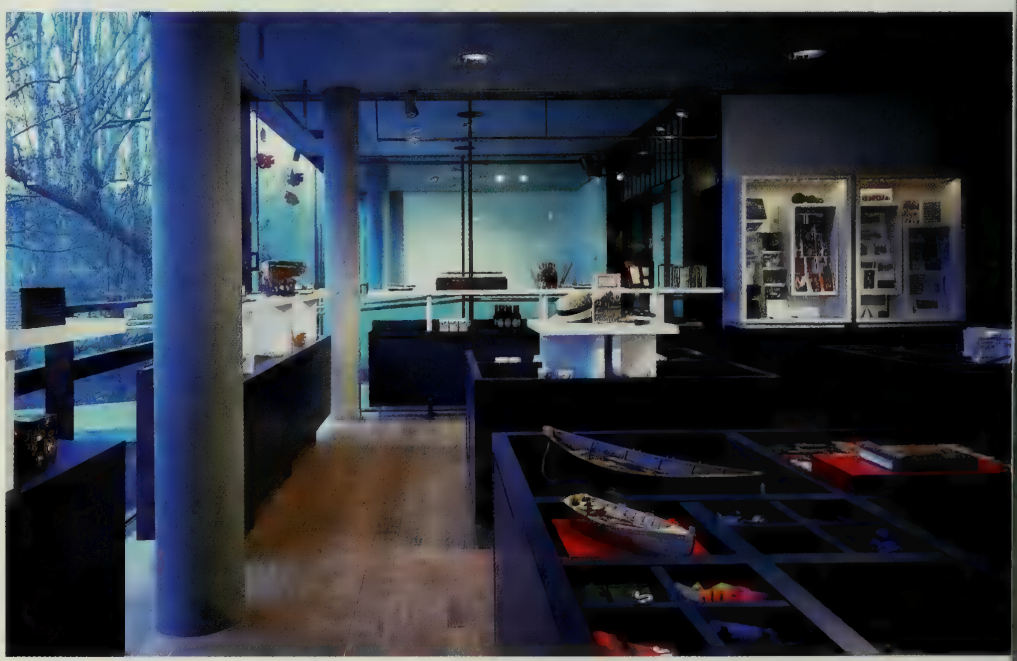


above grade. Transparency characterizes the first level, a gesture to the open, public character of the main entry, cafe, foyer, meeting rooms, and initial exhibit spaces. By contrast, the second level, which houses the primary galleries, presents a more closed appearance.

Inside, light shoots through the spaces unexpectedly. Rays from above naturally illuminate the elevator shaft to glowing, mysterious effect. Upstairs, the galleries are surmounted by louvered skylights that enhance the pitched space, a condition somewhat marred by the crowded installation of boats and oars (Chipperfield did not design the exhibits). The overhead glazing provides the primary light source, which is moderated by curved metal screens that disperse light to the side walls.

A horizontal bridge connects a later addition to the main structure and provides an airy view of the river. The gallery interiors from the project's second phase seem dark and enclosed compared to those in the original building.

The architects focused their attention on the details. Stairways feature glass-sided metal rails, inset in gaskets, with knife-sharp edges to treads and risers. Handrails seamlessly combine stainless steel and wood. Clean edges define borders throughout the structure, outlining where a window slides into a wall or a light fixture cuts into the ceiling plane. The building seems as well crafted as a boat.



Simple forms and attention to detail characterize the River and Rowing Museum, inside and out. Transparency sets the tone for the public, open nature of the first level (above), while the upstairs presents a more closed, boxlike appearance (opposite).

Structure/Materials

Chipperfield has designed an exquisite but humble building that defers to its surroundings. His choice of materials—primarily wood and glass—help complete this disappearing act. He clad the building's exterior with oak panels in horizontal strips, a natural material that calms the forms and sets the building firmly in its Oxfordshire context. Inside, strip oak flooring continues the motif. Chipperfield plays the textured siding against an asymmetrical Modernist composition characterized by a concrete structural base and simple forms. Black metal railings and operable windows outline finish details.

Commentary

Beautifully sited in a pastoral setting, this small building captures the historic spirit of the place through its materials and forms while speaking eloquently in contemporary architectural language. And while the museum announces Henley-on-Thames' most famous achievement to the world, it has simultaneously become part of the cultural identity of the town. Townspeople—including senior citizens, young mothers, and small children who frequent the cafe and enjoy the riverside setting—have adopted the museum as part of their local world. ■

OARS, OARLOCKS AND OUTRIGGERS

Two wings beat together, a whoosh through the water. As they emerge for another immense stroke, it becomes clear: these are no wings. They are oars.

– Craig Lambert, *Mind Over Watershed*

Oars are levers that move a boat past water, rather than pushing water past the boat. All levers have three parts: effort, load and a fulcrum.

- The effort on an oar is the pull given by the rower.
- The load is the boat and crew.
- The fulcrum is the blade in the water.

The load is attached to the oar by the oarlock. The catch or bite of the blade in the water at the start of a stroke is vital because it gives the rower a stable fulcrum to work the lever.

North Carolina Pottery Center

Seagrove, North Carolina

2

FRANK HARMON ARCHITECT CREATES A POTTERY SHOWPLACE AND ARTISTS' GATHERING PLACE WHERE DAYLIGHT AND RURAL CHARM ABOUND.

By Jessica Dheere

Architect: *Frank Harmon Architect—Frank Harmon, FAIA, principal in charge; Vincent Petrarca, project manager; Quan Banh, Charles Holden, Jeff Schroeder, design team*
Client: *North Carolina Pottery Center*
Consultants: *Morrison Sullivan Engineers (structural), Stanford White Engineers (MEP), Swanson and Associates (landscape), Dan Gottlieb (exhibit design), Design Dimensions (exhibit fabrication), John William Brown Company (general contractor)*

Size: *7,500 gross square feet (main building), 1,500 gross square feet (education building)*
Cost: *$1.25 million*
Completion date: *November 1998*

Sources
Roofing: *Northstate Roofing*
Windows: *Hopes Steel Windows*
Paint: *Cabot*
Sliding exterior doors: *Plywood on metal frame*
Exhibit lighting: *JUNO Lighting*

WWW *For more information on the people and products involved in this project, go to* **Projects** *at:* **www.architecturalrecord.com**

Program

Like tobacco, Tarheels, and Christmas trees, pottery in North Carolina is a way of life. Though, until November 1998, when the North Carolina Pottery Center (NCPC) opened in Seagrove (pop. 300), daytrippers and tourists might never have known to what extent.

In 1988, a group of potters and other ceramophiles began raising money for a facility whose exhibit and educational functions would expose visitors to local styles and direct them to the potters' studios. In 1993, Frank Harmon Architect of Raleigh won the commission to design the center.

As realized, the center consists of three buildings on a nine-acre site. Harmon designed two buildings among a grove of oak trees on a knoll: a 7,500-square-foot minibasilica for exhibits, lectures, meetings, offices, and archival storage and a 1,500-square-foot education building for pottery workshops. An existing house will serve as a visiting artist's residence. Exhibits chronicle the evolution of pottery in North Carolina from prehistory to present day and display the work of more than 100 local potteries.

Solution

Harmon held a workshop to gather input from potters, professors, the mayor of Seagrove, representatives from the state's department of cultural resources, and exhibit designer Dan Gottlieb. Most local potteries are



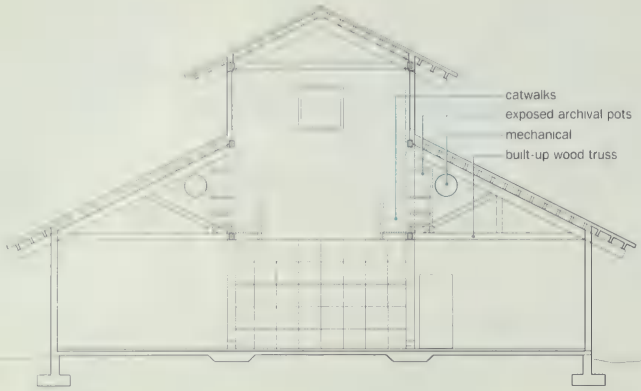


The differing size and scale of the buildings and their placement among the mature oaks make the center feel like an enclave that has developed over time (this page and opposite).

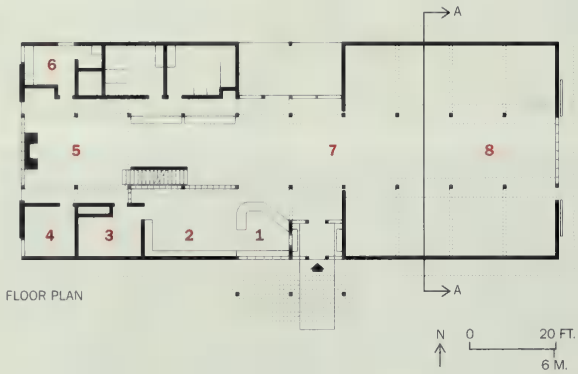
1. *Pottery museum*
2. *Education building*
3. *Administration building*
4. *Parking*
5. *Oak grove*
6. *Pond*
7. *Festival meadow*







SECTION A-A



FLOOR PLAN

1. *Reception*
2. *Gift shop*
3. *Storage*
4. *Office*
5. *Multipurpose*
6. *Lounge*
7. *Lobby*
8. *Exhibit*

By lowering light levels, an entrance pergola and handmade door with tiny windows help visitors adjust to the bright interior (below).





in artists' homes or in studios attached to the home, says Harmon, so they wanted it "to be friendly and open . . . to feel like you were visiting someone's house and studio."

This sentiment called for natural materials and simple barnlike forms and colors to give the buildings a rural look. Daylight admitted through clerestories in the monitor roof and wall windows imbued the main building with an "openness [that] knocks people out," says Terry Zug, a former NCPC board member and professor at UNC-Chapel Hill. Unlike most museum or gallery architects, Harmon didn't have to worry about maintaining low light levels because sunlight doesn't damage ceramics the way it does paper or canvas.

Despite the abundance of light in the gallery, Harmon was concerned that if visitors entered the gallery from the full Southern daylight, with their pupils contracted, they would feel as if they had walked into the dark. This sensation would have detracted from the openness he had tried to create.

To cheat the eyes, Harmon designed an entrance pergola that reduces daylight by about half. Here, visitors walk through the first of two 300-pound maple doors, handmade (and donated) by the architect, into a vestibule. Four-inch-square Plexiglas windows in the doors admit even less light than the pergola. As a result, when visitors finally step through the second door into the gallery, brightness not darkness greets them.

A mezzanine—visible from below and accessible via catwalks—provides storage for hundreds of pots, a nod to the greenware (unfired pots) that occupies every flat surface in most potters' studios. Finally, the education building's wide, shaded porch reproduces another common feature of home studios, which allows artists to work outdoors.

Structure/Materials

Both inside and outside the center, Harmon, working with contractor Paul Turbeville, left the wood structure exposed so that the building would "show its own sense of craft." On the exterior walls, the vertical support members are visible, and roof trusses, lookouts, and outriggers reveal themselves. Inside, columns built-up from pieces of southern yellow pine seem "almost woven together," Harmon says. Heart pine recycled from century-old textile mills gives the center's floor "a rich quality," says Zug, "particularly when lit at night." Finally, the corrugated galvalume roof is more elegant than the metal roofs of neighboring buildings.

Commentary

Renowned North Carolina potter and former NCPC board member Mark Hewitt praises the flexible exhibit spaces and educational mission that are drawing potters from all over. "With time and leadership," he predicts, "it will be a leading center of ceramic exchange." ■



Wall windows, unusual in settings for displaying art, let visitors see finished pots and the clay-bearing soil from which they came all in a glance.

The New Art Centre at Roche Court

East Winterslow, England

3 **MUNKENBECK + MARSHALL DESIGN A THOROUGHLY MODERN INTERVENTION WHERE THE PUBLIC CAN VIEW ART ON A PRIVATE COUNTRY ESTATE.**

By Elizabeth Harrison Kubany

Architect: *Munkenbeck + Marshall—Stephen Marshall, partner in charge; Stuart Cameron, job architect*
Client: *Countess Bessborough*
Consultants: *Barton Engineers (structural); Fulcrum (M & E); Martin Price (general contractor)*

Size: *1,000 square feet (new); 350 square feet (renovated)*
Cost: *$160,000*
Completion date: *September 1998*

Sources
Glass curtain wall: *Cantifix of London*
Skylights: *Cantifix of London*
Sliding doors: *Cantifix of London*
Masonry paint: *Kimes*
Downlights: *SKK Lighting*
Exterior lights: *Louis Poulson*

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Program

When the lease on her prominent London sculpture gallery ended in 1993, Madeleine Ponsonby, the Countess of Bessborough, relocated her business to Roche Court, her family home. Located 5 miles east of Salisbury and about 60 miles south of London, Roche Court was built in the early 19th century, during the Napoleonic Wars, as a retirement home for Lord Nelson. The late-Georgian-style country estate is now a national landmark.

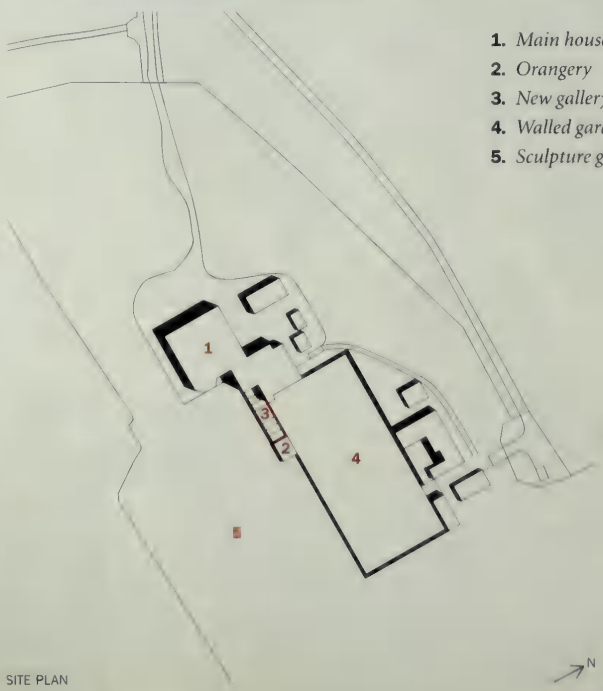
In addition to the main house and the orangery, where small sculptures and paintings are exhibited, Roche Court provides 120 acres of lawns, woods, and fields in which Lady Bessborough shows outdoor sculpture. Her gardens now contain one of the largest collections of outdoor sculpture in the country, including works by such renown sculptors as Allen Jones, Anthony Gormley, and Barbara Hepworth.

The New Art Centre, as the gallery and gardens are called, is open to the public all year and attracts between 5,000 and 10,000 visitors. When the owners decided they needed more indoor gallery space, they hired London firm Munkenbeck + Marshall.

Solution

The design solution is remarkably simple. Located along the south





1. *Main house*
2. *Orangery*
3. *New gallery*
4. *Walled garden*
5. *Sculpture garden*

SITE PLAN



The contemporary glass and concrete gallery for viewing small sculptures is nestled between the Late-Georgian house and orangery (this page). The gardens contain one of the largest outdoor sculpture collections in the country (opposite).







edge of the walled gardens, the new gallery uses an existing garden wall as its backbone. The architects conceived a skeletal-steel-framed, glass-enclosed bar building nestled between the house and the orangery. The expanse of glass that forms the south elevation of the new gallery establishes its connection to the open sculpture gardens in true Modernist tradition. Because of the gallery's integral connection to nature, the paintings and sculpture are sheltered, yet part of a gardenlike setting.

Structure/Materials

The existing wall supports the roof on the north side of the gallery. Two steel columns, only two inches in diameter, provide additional support at the opposite elevation. These structural elements are encased in the two 13-foot, 6-inch cedar doors that divide the glass elevation into three bays. These hidden door columns make the aluminum-clad roof seem to float without any support above the gallery. This effect is most powerful when the doors, which pivot on concealed ball races, are open. The doors can be closed in inclement weather.

The cedar doors punctuate the south elevation, which is formed by three laminated glass panels. The architects designed a frameless wall system—the glass slips into slots in the ceiling and is fixed back to the edge of the slab with stainless-steel plates at ground level—the startling result is that there is nothing solid to separate indoors from out.

The roof is angled to give more expansive views out to the garden. Above the glazed elevation, it is beveled to further diminish its visual weight. The roof slopes back from this point to the existing wall in the rear, but is separated from it by a row of translucent-glass skylights that filter in natural light and add to the detached effect. Light reflects off the silvery tone of the ceiling and bounces back onto the exhibits.

An unreinforced, unsealed concrete slab, made without aggregate, forms the gallery floor and adds to the sense of lightness because of its color. The risers of the steps are local limestone.

Commentary

The result is a delicate enclosure that provides seamless connection between indoors and out, sculpture garden and sculpture gallery, historic and new, man-made and natural.

Munkenbeck + Marshall has created a space of remarkable clarity and serenity. Sited in this genteel, bucolic setting, the New Art Centre provides visitors the opportunity to forge a special, intimate relationship with the works on display. ■



PLAN OF NEW GALLERY

1. *Main house*
2. *Orangery*
3. *New gallery*

The architects conceived the gallery as a seamless connection between indoors and out, historic and new (below). At night, the architecture seems to disappear (opposite top). The gallery has been treated as a classically Modernist link between the late-Georgian structures (opposite middle and bottom).

Chibougamau Mining Interpretation Center

Chibougamau, Quebec, Canada

4 **BY BUILDING A MUSEUM IN A DEFUNCT COPPER MINE, JULIEN ARCHITECTES HAS SHED SOME LIGHT ON A LIFE UNDERGROUND.**

By Elizabeth Harrison Kubany

Architect: *Julien Architectes—Marc Julien, partner in charge; Stéphane Carrière, architect; Michael Boxer, architect-intern*
Client: *Economic and Tourism Commission of Chibougamau—M. Ronald Blackburn, mayor of Chibougamau*
Consultants: *Idéation Communications (exhibit designer); Gérin-Lajoie Experts-conseils Inc. (structural, mechanical, electrical); Roche Ltée Groupe-conseil (mining engineering); Larouche Construction (general contractor)*

Size: *2,400 square feet (interpretation center only); 12,000 square feet (center and all tunnels)*
Cost: *$408,000*
Completion date: *May 1997*

Sources
Sealants: *Ferlac Inc.*
Copper cladding: *Russell Steel*
Insulation: *Rocksul*
Doors and door hardware: *Von Duprin, Schlage, Sargent, Richard Wilcox, Mont Hard*
Wood paneling: *Goodfellow*
Lighting: *Peerless, RAB*
HVAC systems: *Dry-o-Trom, Westinghouse, TECK*
HVAC controls: *Edwards*

WWW *For more information on the people and products involved in this project, go to* **Projects** *at:* **www.architecturalrecord.com**

Program

Mining is the bedrock of the economic and cultural identity of Chibougamau, a remote area located 1,000 kilometers north of Montreal in Quebec. "There are two large mines in Chibougamau now," says Marc Julien of Julien Architectes in Montreal. "If the mines close, the town will close."

The local Bruneau Copper Mine was operational for only two years during the 1960s before its seam of copper was exhausted. But, in 1992, when two local geologists and a retired miner suggested building a mining museum adjacent to an old mine, Bruneau was recommended because it was the only mine in the area bored horizontally into a mountain.

Solution

Julien Architectes was hired to build an interpretive center outside the mine. Instead, Marc Julien proposed bringing visitors inside the shaft to let them experience what it is like to be a miner. Rather than design an artificial enclosure, Julien has made the mine itself the architectural form.

The primary program elements—the reception room, the washrooms, the permanent exhibit room, and the cloakroom—are housed in a series of found and newly created spaces. Almost 60 percent of the modest budget for the project was used to excavate more space from the rock with dynamite.



From a distance, all that is visible of the museum is a shining, linear copper wall jutting out from a mound of rock debris. The only element visible from the exterior of the mine, the wall both recalls the mine's former use and helps unify the design. While not continuous, the copper wall appears throughout the project to signal the primary program elements. It also doubles as a technical service wall, concealing electrical controls and light fixtures.

Visitors enter the center between the old rails for the carts that carried the metals out of the mines. Once inside, they encounter the entrance gallery first. Because of the minimal budget, Julien had to design a space that could be run by only two people—one to supervise the main program areas from the centrally located reception desk, the other to take visitors on tours.

The large exhibition space, just beyond the reception desk, contains simplistic historical panels and displays and cartoonlike figures. After passing through the reception area, visitors—like the miner going to work—put on a hardhat and headlamp, boots and a belt. Beyond the heavy steel door, at the end of the wall, they are greeted by total darkness, hearing only the sound of water dripping. Life-size images of miners at work appear, illustrating mining techniques through history; they are shown emerging from a



1. *Path*
2. *Entrance terrasse*
3. *Copper wall*
4. *Entrance door*
5. *Main tunnel*
6. *Bathrooms*
7. *Reception desk*
8. *Boutique*
9. *Exhibit room*
10. *Vertical shaft exhibit*
11. *Existing rails*
12. *Cloakroom*
13. *Gate to mining complex*

A modular copper wall announces the entrance to the interpretation center (below). The entire museum is built into an existing mine (see plan left). The reception area, with its circular desk, is the first space visitors encounter (opposite).

Before entering the tunnels, visitors stop at a cloakroom to garb themselves in authentic miners' gear (right). One of the exhibitions tells the story of mining through history by showing miners at work, doing a variety of tasks (right bottom).





chute, shoveling debris, discussing technical problems, and drilling. The last space in the center before the entrance to the tunnels contains a sound and light show.

After passing through all the program elements, visitors can explore 1.2 kilometers of tunnels. Their headlamps are the only source of light, making the experience even more authentic.

Structure/Materials

All materials are indigenous to mines. Finely crushed gravel, a remnant of the excavations and of Bruneau's days as a working mine, carpets the floor. Pine planks create pathways that lead the visitor through the center. The doors are galvanized steel, just like the doors in a working mine. Rough spruce, a local wood, was used for all the millwork. Frost fencing has been bolted to the rock ceiling, preventing debris from falling while still allowing rainwater to seep in, as it does naturally, through fissures in the rock.

All elements of the interior, from the mechanical and electrical equipment to the displays, had to be waterproof, and the washrooms and mechanical room have protective roofs like those found in other mines. In the shop, shelves and lighting fixtures are protected by copper awnings. The reception desk has a stone countertop, its drawers are watertight, and the cash register can be stored in a waterproof locker.

Commentary

The idea of placing the museum within the mine itself has such power that the exhibits seem weak and extraneous by comparison. Unlike more traditional museums where visitors are passive observers of exhibits, the Chibougamau Mining Interpretation Center promotes the knowledge and understanding of an activity that has been vital to this region by emphasizing the experiential quality of an actual space. The architectural interventions reinforce the quality of the original interior while still accommodating the museological needs. As Marc Julien says, "This project was designed to evoke emotions. It is not only about learning; it is also about feeling." ■

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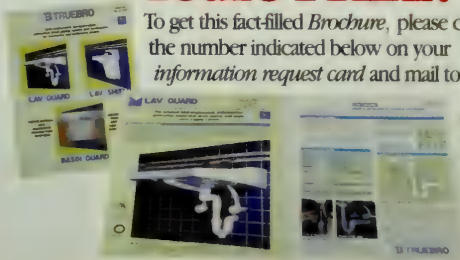
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CIRCLE 46 ON INQUIRY CARD

Making Sense of Single-Ply Roofing

WHAT PERFORMS BEST AND LASTS LONGEST DEPENDS ON THE TYPE AND QUALITY OF THE MEMBRANE AND THE INSTALLATION SYSTEM.

By Steve Hardy and Mark Boulay

Most architects, unless they're extraordinarily dedicated to roofing systems, can't remember all the names, initials, and chemical compositions of single-ply roof membranes, let alone digest the performance characteristics of each type. "Every so often I have to go look them all up and make sure I understand how each of the materials is performing lately," says Vaughn Wagoner, an architect at Lockwood Greene in Atlanta.

Part of the industry's confusion comes from the idea that new single plies come along frequently. But the fact is that most "new" membranes are simply reformulations of existing products. According to the National Roofing Contractors Association (NRCA), there are eight manufacturers offering 30 variations of polyvinyl chloride (PVC) single plies and 14 manufacturers offering 44 other types of single plies. For example, the names of membranes within the PVC family may be changed to enhance marketing efforts as much as to portray performance characteristics. Butadiene acrylonitrile polymers (NBP), for example, contains as little as 6 percent of the NBP, with the balance of the formulation made up of PVC and fillers. But by calling the membrane NBP, the manufacturers offer a unique product.

The latest membrane, and one that is genuinely new to the industry, is thermoplastic polyolefin (TPO). It's been on the market for about six years, but widely available for less than three. Among its attributes, TPO is reportedly resistant to UV degradation and premature aging from exposure to the high temperatures often present on the rooftop.

Steve Hardy is principal of Moisture-Tech., NW, a roofing consulting firm. He is the author of Time Saver Details for Roof Design *[McGraw-Hill, 356 pages]. Mark Boulay is chief engineer for Engineering Services Group, civil engineers specializing in commercial roofing, in Centerville, Mass.*

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 144 and follow the instructions

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Describe the components of single-ply roofs.*
2. *Explain the difference between thermoset and thermoplastic membranes and understand the performance properties of each.*
3. *Discuss the newest single-ply membrane, thermoplastic polyolefin, and its characteristics.*
4. *Identify various roof membrane attachment methods.*



NBBJ chose PVC roofing for Safeco Field because of its ease of installation.

According to SPRI, a trade organization for manufacturers of single plies, it is also flexible in cold temperatures and more resistant to punctures and tears than other types of membranes.

New products bring excitement, as well as exaggerated claims, and TPO is no exception. There's often confusion about how to specify and detail the newcomers, and questions about how well the membranes will perform. It's difficult for architects to choose a membrane wisely.

Wagoner has a two-step solution—a belt-and-suspenders approach—to the marketing hype. He focuses on the quality of the roof system as a whole, making sure the underlayment, deck, and attachment system are carefully thought out and detailed. And he checks out the reputation and reliability of the manufacturer because the company's

CASE STUDY

Garden Ridge, Atlanta

Hermes Reed Architects is increasingly specifying TPO roof membranes paired with a cementitious underlayment, which gives a sturdy, smooth surface that stands up to traffic. The firm has designed more than 25 Garden Ridge stores, a home decor and crafts retailer. The first few buildings had an EPDM roof, but punctures were a continual problem. "Installing the cross-shaped, high-bay, metal roof left screws littered across the roof surface. These were popping the EPDM laid over them and the roofs were leaking," says Robert Kane, AIA, project architect. He switched to a mechanically attached TPO, which is not only more puncture-resistant, but also faster to apply. "It doesn't have the prep time that EPDM requires," he says.



recommends evaluating a company's track record before specifying their product. "Not all TPOs are alike. Many companies buy the raw material in batches from wholesalers, which means they have little control over the consistency of the ingredients," he says.

The nitty gritty

Membrane thicknesses for all single plies range from .033 to .060 mils, though thicker roofs are available for special uses. The 8.9-acre retractable PVC roof over Safeco Field in Seattle, designed by NBBJ, is a weighty .080 mils, .096 mils in the gutters. "We knew people would be up there walking around so we needed something to stand up to traffic," says Knut Hansen, the architect who specified the roofing. "The thickness made it difficult to seal the seams—something specifiers should know before they pick something this hefty."

In general, however, a thick membrane will not always outperform a thin one. TPO may be an exception here since heavier sheets—.040 mils or more—offer greater dimensional stability. But, in general, the quality of the formulation, the characteristics of the inner reinforcing scrim, the abilities of the installer, and the compatibility of the single-ply membrane with the rooftop environment all factor into the roof's performance.

Most single-ply membranes have a scrim reinforcement layer, usually polyester, sandwiched within the membrane to give the sheet puncture and wind-load resistance, and to increase dimensional stability. Reinforced sheets are required when a system is mechanically attached to give the fasteners better holding power. Unreinforced sheets are less expensive, however, and may be used when a membrane, usually EPDM, is loose-laid and ballasted. The ballast protects the sheet and enhances wind resistance.

Warranties among the varieties are similar: 10 to 20 years, depending on the installation. An improperly applied flashing or edge detail will quickly void a warranty, so understanding the terms is important. English recommends working closely with the manufacturer, especially when installing TPO—because of its newness—or if some type of special modification to the roof is required. "We recently put an addition onto an existing building and seamed the older PVC to the newer membrane [from the same manufacturer]. I had the reps come right up on the roof and watch it being done to make sure no warranty conditions were violated," he says.

Attaching the membrane

The attachment method that's used, whether fully adhered, mechanically fastened, or ballasted, depends on type of membrane, height and size of the building, fire rating, deck material, building use, and wind

TELLING THEM APART: SINGLE-PLY CHARACTERISTICS

EPDM

- **ETHYLENE PROPYLENE DIENE MONOMER** (SOMETIMES TERPOLYMER IS USED) MOST POPULAR SINGLE PLY, COMMONLY KNOWN AS A RUBBER ROOF BECAUSE IT IS MADE OF THE SAME MATERIAL AS TIRE INNER TUBES.
- INSTALLATION: MECHANICALLY FASTENED, FULLY ADHERED, BALLASTED (USED MOST OFTEN)
- SEAMS: CHEMICALLY FUSED (WITH ADHESIVES OR TAPE)
- INTRODUCED: EARLY 1960s
- COLOR: GRAY
- NOTES: DURABILITY FOR NEW AND REROOFING APPLICATIONS IS PROVEN OVER MANY YEARS OF USE, BUT MANY ARCHITECTS DISTRUST THE SEAMING MATERIALS.

CSPE

- **CHLOROSULFONATED POLYETHYLENE** (COMMONLY KNOWN AS HYPALON) A THERMOPLASTIC THAT THERMOSETS IN THE FIELD.
- INSTALLATION: MECHANICALLY FASTENED (USED MOST OFTEN), FULLY ADHERED, BALLASTED
- SEAMS: HEAT WELDED
- INTRODUCED: 1950s
- COLOR: WHITE, LIMITED CUSTOM COLORS
- NOTES: USE IS DECLINING DUE TO COSTS, WHICH ARE OFTEN HIGHER THAN OTHER MEMBRANES, AND REPAIR PROBLEMS. RECENT REFORMULATIONS ATTEMPT TO ELIMINATE PROBLEMS WITH RED ALGAE (A RESULT OF PONDING), AND CHALKING.

PVC

- **POLYVINYL CHLORIDE** VARIATIONS SUCH AS NBP, EIP, CPA, AND CPE, ARE USUALLY SPECIAL-PURPOSE MEMBRANES CONTAINING PVC, FILLER MATERIAL, AND A PERCENTAGE OF PROPRIETARY MATERIAL.
- INSTALLATION: MECHANICALLY FASTENED, FULLY ADHERED (USING A SMOOTH OR FLEECE-BACKED SHEET BONDED WITH ADHESIVES OR HOT ASPHALT), BALLASTED (NOT TYPICALLY COST EFFECTIVE)
- SEAMS: HEAT WELDED
- INTRODUCED: LATE 1960s
- COLOR: WHITE, CUSTOM COLORS
- NOTES: AVAILABLE ONLY AS A REINFORCED SHEET AFTER NUMEROUS SYSTEMS FAILED IN THE EARLY 1980s. PRODUCT REFORMULATED OVER THE YEARS TO IMPROVE ITS DURABILITY AND CONTROL SHRINKAGE. SUITABLE FOR NEW AND REROOFING APPLICATIONS.

TPO

- **THERMOPLASTIC POLYOLEFIN** (TECHNICALLY THERMOPLASTIC ELASTOMER OLEFIN, A TYPE OF PVC) COMBINES THE RUBBER (ETHYLENE PROPYLENE) IN EPDM WITH POLYMERS (OLEFINS) TO PRODUCE A THERMOPLASTIC MATERIAL WITH HEAT-WELDED SEAMS.
- INSTALLATION: MECHANICALLY FASTENED, FULLY ADHERED
- SEAMS: HEAT WELDED
- INTRODUCED: 6 YEARS AGO
- COLOR: BLACK, WHITE, GRAY, LIMITED CUSTOM COLORS
- NOTES: THE LATEST SINGLE PLY TO ENTER THE MARKET, TPO LACKS A PROVEN TRACK RECORD. DIMENSIONAL MOVEMENT IS A POTENTIAL PROBLEM, BUT COMPARATIVELY INEXPENSIVE.

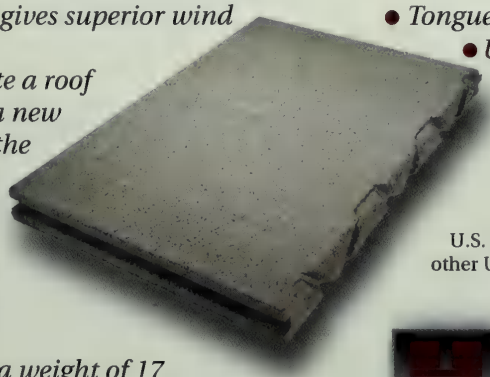
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CIRCLE 47 ON INQUIRY CARD



Recycling used single-ply roof membranes

With something like 1,400 square miles of low-slope roofing in place in the U.S., an area slightly larger than the state of Rhode Island, and close to $13 billion spent annually on reroofing, disposal of the old membrane is a big issue.

Thermoplastics, such as PVC and TPO, are recyclable, while thermoset membranes, such as EPDM, are not. Here's why: thermoplastics can be melted, purified, and reextruded; thermoset plastics have been changed during the polymerizing process and cannot be changed back. When EPDM is recycled, it is chopped up and added to another material, such as rubber flooring.

One of the few companies actively recycling commercial roofing is Conigliaro Industries in Framingham, Mass. Gregory Conigliaro, president, says his company recycles about one million square feet of PVC membrane per year, or 20,000 pounds per month (left), plus several million board feet of expanded polystyrene insulation, and a small amount of EPDM. For large reroofing jobs, the company charges a flat price that is usually no more expensive than landfilling the waste. With foam insulation, where there is more of a market for the waste, the cost of recycling is about 40 percent lower than landfilling.

Conigliaro sells recycled PVC to compounders for use in manufacturing a wide range of consumer goods and as a component in cold-patch paving materials. Recycled foam is used as beanbag stuffing, plant hangers, and flower pots.

Unfortunately, few roofing manufacturers actively promote recycling. An exception is Sarnafil, producers of PVC roofing. Through Conigliaro Industries, Sarnafil is promoting recycling of PVC membrane on reroofing jobs in New England. The company is producing a video on roof membrane recycling for sales reps. "To date we're not seeing a lot of requests for recycling," says Brian Whelan, Sarnafil's vice president of sales. He is hoping that the new video will help to turn that around. Sarnafil also recycles post-industrial scrap from both their PVC and TPO production lines to produce walkway layers for roof surfaces.

—Alex Wilson, executive editor and publisher of Environmental Building News

loads expected for the life of the roof system.

Mechanically fastened: There is an assortment of methods, including nonpenetrating clips and metal plates, batten strips, or bars. The type of fastener is dictated by the single-ply manufacturer, but the number of fasteners as well as the size and position of each is based on the design of the building and the architect's specifications. "That's where the architect has an opportunity to improve the performance of the roof," English says. Making sure the fasteners are close enough to prevent the deleterious effects of wind uplift, expansion and contraction, and other stresses adds time to the life of the assembly.

Fasteners secure the sheets at the seam edges, which leaves the loose area between the seams free to flutter in the breeze. If there are not enough closely spaced fasteners, this consistent fluttering will cause the fastener shanks to eventually wiggle out of the deck. This means that adjacent fasteners must absorb the load, causing them, in turn, to fail. This failure cycle leads to the demise of the roof.

Steel batten bars are susceptible to movement due to temperature changes. This movement stresses the fasteners that hold the bars in place. Again, an insufficient fastening schedule will lead to the roof's failure. Plastic bars may be a good alternative.

The cost-effectiveness of a mechanically attached assembly drops as the number of narrow profiled areas, penetrations, or wall openings increases. Or if a building is long and narrow, edge and corner attachments are so frequent, it may be less expensive to use a fully adhered membrane.

Fully adhered: Membranes are attached to the roof substrate with manufacturer-supplied adhesives, often latex based, compatible with the substrate and the sheet. The roof substrate is normally roof insulation, cementitious board, or low-moisture concrete.

The cost of the adhesives and the labor and time required to apply it and smooth the sheet in place makes a fully adhered single ply more expensive than mechanical attachment or ballasting. But the uniform bond of membrane to substrate achieves a roof that's highly resistant to wind, water, and dimensional changes.

Ballasted: Large sheets of material are rolled into place



Heat-welded PVC seams are stronger than the membrane in the roof field.



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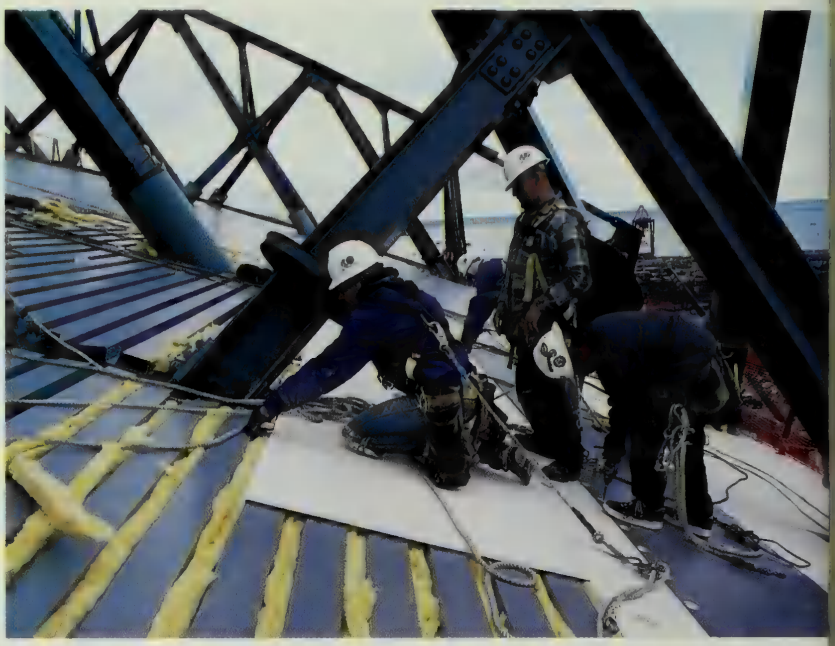
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CIRCLE 48 ON INQUIRY CARD

and ballast, in the form of washed river gravel, crushed stone, or concrete pavers is layered over the top. As simple as this system is, there can be problems. The wind scours the roof perimeter and corner areas, eroding the gravel. This leaves these areas unprotected and vulnerable to wind uplift. Ballasted roofs are banned in many cities due to ballast blowing off the roof in high winds and causing damage to adjacent buildings. And fines, small, sand-sized particles from the aggregate ballast, act as abrasives that deteriorate the roof.

Ballast atop a roof prevents sunlight from reaching the membrane surface. This prevents UV degradation, but the membrane can stay wet and moist—ideal for vegetation growth. These problems aside, a ballasted system, paired with an EPDM membrane, is probably the most economical means of attachment.



Working 200 feet in the air, roofers applied PVC to Safeco Field's roof.

Looks matter

Performance characteristics aside, aesthetics often drive the decision to specify single plies. "We used PVC on a vaulted roof and the seams are almost invisible," English says. "The overall impression is of a smooth white cap that enhances the look of the building. Most roofs look like necessary evils."

Color is also important, both to the look of the project and its performance—reflective light-colored roofing is more energy-efficient than black roofing in warm climates. The overall trend in the U.S., the NRCA reports, is toward a white or light-colored membrane. Custom colors, like the "Seattle Mariners' gray" used on the Safeco Field roof, cost more but are worthwhile if there is enough material specified. "You could have a lot of fun with all the different colors," NBBJ's Hansen says. "I can imagine a roof that becomes the most important feature, with the rest of the building serving as a backdrop." ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Making Sense of Single-Ply Roofing" using the learning objectives provided.
- Complete the questions below, then check your answers (page 198).
- Fill out and submit the AIA/CES education reporting form (page 198) or file the form on ARCHITECTURAL RECORD's Web site at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. What are the advantages of thermoplastic membranes over thermoset?

2. What are the components of single-ply roofs?

3. What are the advantages of the newest single-ply membrane, TPO?

4. What are the differences between membrane attachment methods?

5. What are single-ply roof membranes made of?

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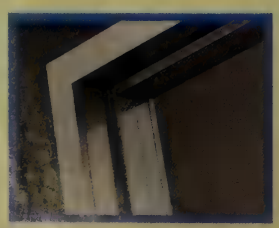
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CIRCLE 50 ON INQUIRY CARD

Tech Briefs

KEEPING THE LOW-SLOPE ROOF ON THE BUILDING WHEN THE HARSH WINDS BLOW



Wind is a roof's worst enemy. When it slams into a building, the pressure against the building face is directly proportional to the wind velocity. But as wind pushes over the top of the building, it accelerates. Thanks to Bernoulli, architects know this high-velocity wind causes negative pressure, or a lifting effect, on the roof. The negative pressure is directly proportional to the wind velocity, but the magnitude of the force is higher at roof perimeters and corners. As a result, this is where close to 80 percent of all wind-related roof failures occur, according to Factory Mutual Research, a nonprofit division of FM Global, an insurance company.

To prevent these problems, all roof elements, including the membrane, insulation, deck, edge metal, perimeter wood-blocking, and walls, must perform in concert to resist wind uplift. The successful performance of perimeters and corners on low-slope roofs cannot be attained by citing one standard. ANSI and the Single Ply Roofing Institute (SPRI) have some standards (ANSI/SPRI ES-1-98), as do the American Society of Civil Engineers (standard ASCE 7-95) and FM Global in its Property Loss Prevention Data Sheets. The following are some common details and recommendations drawn from these sources. Abiding by these guidelines will not only mitigate wind uplift damage, they will also help architects avoid liability issues if problems do occur.

Membrane: Adhered membranes don't require additional attachment, but mechanically attached single plies do. Fastener rows along the perimeter should not exceed 60 percent of the width of the fastener rows in the field of the roof. At the corners, fastener rows should not exceed 40 percent.

Insulation: The number of mechanically attached insulation fasteners needed increases by 50 percent at the perimeter and 75 percent at corners relative to the field. Adhesive-applied insulation "spots" must increase by 70 percent along perimeter and 160 percent at corners.

Deck: Reinforced-concrete decks don't need more reinforcing, but steel decks require doubled fasteners at the perimeter and corners. Cementitious wood-fiber decks should have their attachment density increased by 70 percent at the perimeter and 160 percent at the corners.

Edge metal: The success of this troublesome detail depends on the integrity of the substrate, the wind resistance of the edge detail, and the quality of the materials. For the latter, the ANSI/SPRI ES-1-98 worksheet provides guidance.

Perimeter wood blocking: This should be pressure-treated wood, at least 2-by-6 inches, secured to a masonry wall by corrosion-resistant anchor bolts. Vertical-design load resistance should be a minimum of 200 pounds of force per foot. Wood blocking should never be attached to lightweight concrete or gypsum decks.

Perimeter walls: Anchor bolts should be bent by 90 degrees at the base to prevent rotation and slippage, and should not exceed a spacing of 4 feet on center—2 feet on center within 8 feet of an outside corner.

William J. Hope



FEDERAL PROGRAM IMPROVES THE QUALITY OF NATIVE AMERICAN VILLAGE IN THE GRAND CANYON

There is a village at the bottom of the Grand Canyon in Arizona. Its 600 or so residents, the Havasupai Indians, have lived there since the 1300s, getting in and out of the canyon by hiking, riding burros and horses, or, these days, getting a lift in a helicopter in an emergency.

Housing conditions are poor. Of the approximately 130 houses in the village, 30 have no running water or electricity. Utility service is intermittent anyway; electricity is supplied by a single wire snaking down the canyon wall. Roofs are leaky, windows are broken, and air-conditioning—despite the summer's extreme heat—is rare.

This fall, two representatives of the U.S. Department of Energy's Rebuild America program, Jim Cavallo, with Argonne National Laboratory in Argonne, Ill., and architect Paul Knight of Domus Plus, in Oak Park, Ill., rode on horseback, toting supplies on burros (right), down to the village to see how they could help. Rebuild America helps community organizations form partnerships with local governments, utilities, corporations, schools, and building owners to make buildings more livable and energy efficient. Many of the program's 160 community partnerships have involved Native American reservations.

Cavallo and Knight looked for ways to make the buildings energy efficient and, more important, tried to find opportunities for installing photovoltaic (PV) systems, thereby decreasing the area's dependency on electrical utilities.

This spring, the pair plans to return to the canyon to teach members of the tribe to install the PV systems and to weatherize the buildings, making life more comfortable and efficient for those at the bottom of the canyon. *Wendy Talarico*



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CIRCLE 51 ON INQUIRY CARD

Database management systems for architects

Digital Architect

By Jerry Laiserin, AIA

Even before computers came along, architectural practice revolved around information management. Throughout their history, from codes and costs to soil borings and schedules, architects have had to marshall all the possibly relevant data and then sort, filter, and massage it into useful project information. In the past, this was accomplished with laborious notes, books, Rolodexes, and perhaps stacks of index cards. Today, many design firms rely on specialized computer software called database management systems (DBMSs) to make this culling and winnowing process as efficient and productive as possible.

DBMSs ARE SOFTWARE TOOLS THAT STORE, COLLECT, AND FORMAT INFORMATION.

Few architects ever interact directly with a DBMS because users are insulated by application programs—layers of forms, queries, and reports specifically designed to shield them from the complexity of data manipulation. While detailed knowledge of DBMS software is unnecessary, it's worthwhile to understand key terms and concepts. With such a background, architects can make better decisions when buying software that depends on database management. And they can be more effective when coordinating and centralizing a firm's business and design information.

Contributing editor Jerry Laiserin, AIA, consults, writes, and lectures about the impact of information technology on the practice of architecture.

What's in a database?

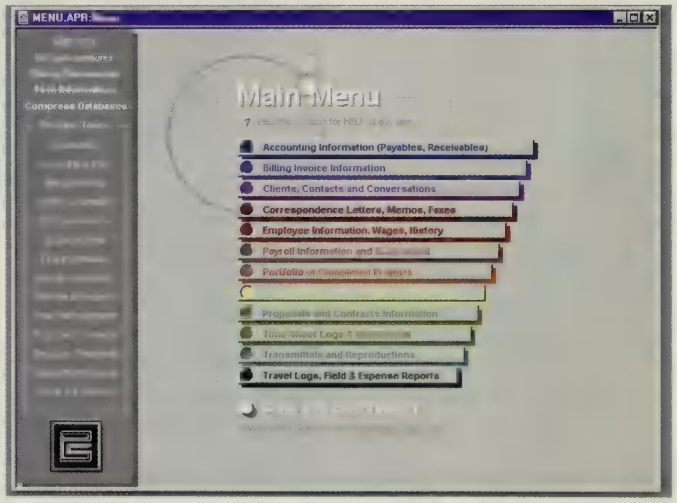
Informally, any computer-based collection of data constitutes a database. Rows of information in a database table are called records. Each record, like each listing in a telephone directory, contains one or more fields of information, such as last name, first name, street address, and so on.

Once data is collected and formatted into records, the information can be shuffled and analyzed in many ways. In a telephone directory, for example, database records are sorted by alphabetizing the last-name field. In an architectural practice, a marketing coordinator might organize a database of projects by geographic area; project managers might sort the same database by number of staff hours remaining in the budgeted fee for active projects; and principals might sort projects by their profitability.

Management systems

DBMSs are the software tools that collect, format, store, and retrieve the desired bits of information. Most DBMSs include a system that generates the forms and reports for entering and retrieving data; a programming language to define the possible operations on that data; and an engine that processes the data according to these defined operations.

There are several types of DBMSs. At one end of the spectrum are flat-file systems, such as Filemaker Pro. These are the easiest to program because they operate on only one level of data at a time. At the other end are relational databases (RDBMS), such as Oracle (from the company of the same name) and Microsoft's SQL Server. These are powerful DBMSs, capable of operating on multiple tables simultaneously and manipulating relationships among the tables. In between these two extremes are systems such as Approach by IBM/Lotus and Access by Microsoft. These are easy to program but less powerful than RDBMSs.



Arch Administrator's menu allows access to client and billing information.

Incompatible data

Commercial software developers rely on DBMSs (typically RDBMSs), in conjunction with other programming tools, when building application products such as financial management programs or specification packages. The actual software purchased by the customer, however, typically contains only the database engine and a set of predefined forms and reports. Thus, a commercially produced marketing program may include forms for making appointments, reminders, and notes about phone calls, and be able to generate reports such as address books, to-do lists, and calendars, but may not include access to the database engine or the ability to create new forms and reports.

Custom-designed programs are tailored to individual firm's needs, but are limited by the software developer's understanding of the underlying data and its potential uses. With packaged or custom applications, such limitations become painfully obvious when a firm tries to share data among applications. For example, the name of a client may

be coded as "client_name" for use in title blocks on drawings in a CAD program, as "client" for use on timesheets and invoices by an accounting program, and as "last_name," "lname," and "recipient" for communications via the firm's word-processing, E-mail, and fax software, respectively.

Because of inconsistencies among programs, the staff-members end up inputting the same information over and over—a time-consuming and error-prone practice, especially considering that a fully computerized firm uses a dozen or more different applications, from electronic timesheets to digital image libraries, each with its own database.

Coordinating databases

It's logical to assume that the path to eliminating this redundancy is to select one DBMS as a standard and then buy or build only applications that use that system as the data engine. In fact, some software is sold in multiple DBMS versions, though these may not be commercially available for every application. Moreover, it rarely makes economic sense to custom-develop software when a commercial alternative is available, even if that alternative does not use the firm's preferred DBMS engine. Thus, most firms are faced with coordinating data derived from different DBMSs.

Most current DBMSs comply with a standard called open database connectivity (ODBC)—a set of rules that enables one database to connect with another. Most commercial software is built on these ODBC-compliant data engines; in theory, therefore, one could centralize databases by linking these data engines according to the ODBC rules. In reality, this approach is rarely chosen because the link has to be updated every time any of the programs are upgraded.

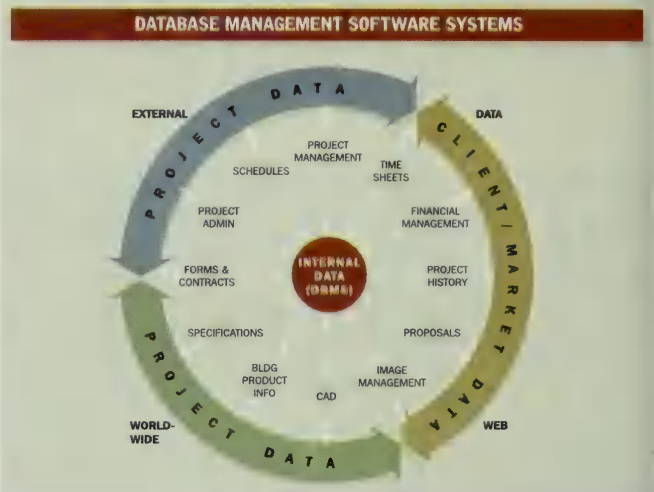
Designer databases

As a result of these limitations, many large, multi-disciplinary A/E practices with sufficient in-house programming staffs, select a powerful RDBMS as their standard and then buy, modify, or develop a fully coordinated suite of applications. Firms that can't afford this kind of investment deploy architecture-specific application packages developed (often in Filemaker Pro) for smaller firms by fellow architects-turned-software-entrepreneurs.

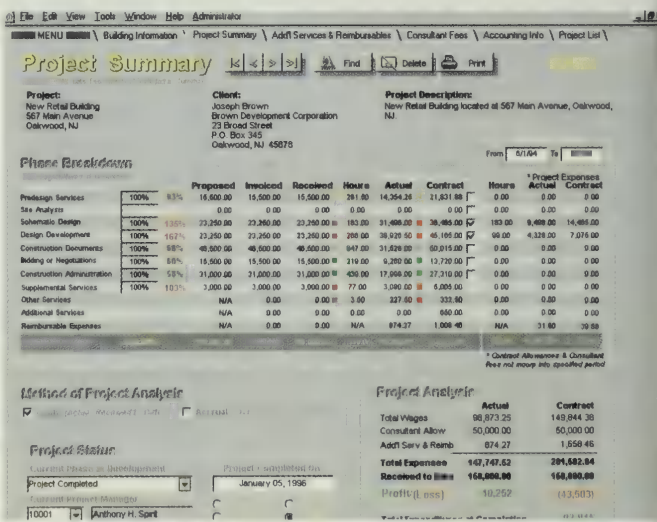
One such package, by Nina Kim McKenzie, AIA, from Oakland, is Arch-Street Portfolio. A series of software modules or components crafted in Filemaker Pro, Portfolio provides a form or report for almost every imaginable nondrawing function in a design firm. Finith Jernigan, AIA, principal of five-person Design Atlantic in Baltimore, finds Portfolio's selection of forms and reports—from proposals and budgets to field reports and invoices—comprehensive enough that he seldom uses other software, such as Microsoft Word or Excel.

Other examples of these software packages created by fellow architects are Arch Administrator by Paul Smialowicz, AIA, of Bloomfield, N.J., and ArchitectData by Dennis Hughes, AIA, of Tampa. Not only are these packages more attuned to the needs of architects in specific, but they are also less expensive than custom-developed applications.

Maurice Wasserman, AIA, a partner at Kappell & Kostow, a 40-person firm in New York City, evaluated some of these tools and found them "well done, but more comprehensive" than what most of his project architects want. For example, on projects requiring a quick turnaround, such as corporate interiors, the set-up time and daily data chores may not justify the rewards. Instead, Kappell & Kostow is exploring Details 2.01, from AECSoftware, a data-management program well-suited to making and storing ad hoc lists—things like submittal logs and punchlists.



SOURCE: © PROJECTWEB.ORG™



An information flow chart illustrates database management patterns in an architecture office (top); Arch Administrator's sample project summary (bottom).

THE WEB MAY BRING A HAPPY ENDING TO THE TANGLED EPIC OF DESIGN-FIRM DBMSs.

Web-based databases

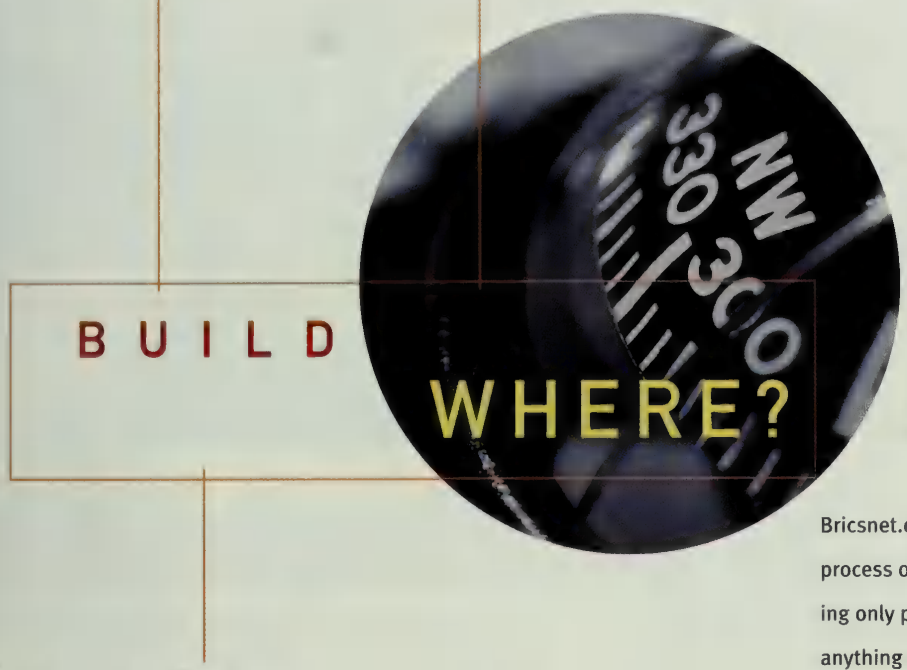
The technology of the World Wide Web may bring a happy ending to the tangled epic of design-firm DBMSs and their complications. Firm-wide intranets—portals for selecting and viewing in-house data through Web browsers [March 1999, pages 39-40]—create a universal front end for firm data, regardless of its residing place or its original DBMS format. Middleware, the Web software that enables browser front-ends to connect to disparate DBMS back-ends, is much easier to program than most individual DBMSs.

While databases and the applications developed with them remain an unavoidable part of a computerized practice, Web middleware makes it easy to extract and combine data from more than one database in a single on-screen browser view. With the additional potential to link data inside and outside the firm with a single mouse-click, Web technology may soon fulfill the dream of "information at your fingertips." ■

WWW *For a list of DBMS vendors and other information-management resources, go to* **Digital Architect** *at:* **www.architecturalrecord.com**

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CIRCLE 52 ON INQUIRY CARD

Wire and Cable Management Systems



Meeting Space and Technology Requirements Without Compromising Aesthetics

The increased reliance on computer networks and telecommunications systems, as well as the transformation of office space into workstations, have fundamentally changed the relationship between information technology and building design. Today, clients require buildings that take full advantage of high-performance data/communications systems. Because rapid change is an economic fact of life, clients also need flexible space so that workstations can be quickly and cost effectively reconfigured. And they are increasingly demanding that aesthetics not be sacrificed for the sake of technology or flexibility.

The challenge is to maximize building function by meeting current and future space and technology requirements without compromising aesthetics. Central to meeting this challenge is the infrastructure that distributes data/communications cabling from communications closets to individual workstations. These wire and cable management systems are integral components of design that have the potential to greatly enhance a building's function.

Today, premises wiring is more than cable in the wall and jacks in permanent outlets. New wire and cable management systems have been engineered for greater workstation flexibility and high-performance cabling. In addition, these new systems have been designed to be as physically and visually unobtrusive as possible.

The growing importance of the cabling infrastructure means that architects have an opportunity to add value to client relationships by taking an active role in incorporating wire and cable management systems into building design. The technology infrastructure should be considered early in the design process, when there is the greatest opportunity to fully meet clients' requirements.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Wire and Cable Management Systems**. To earn two AIA/CES Learning Units including one hour of health safety welfare credit, answer the questions on page156 and follow the reporting instructions on page 198. Or use the Continuing Education self report form on *Record's* web site – www.architecturalrecord.com.

Learning Objectives:

After reading **Wire and Cable Management Systems** you will be able to:

- Describe the workplace needs for wire and cable management.
- Explain how wire management can maximize function in the workplace without being visually obtrusive.
- List the benefits of including wire and cable management early in the design process.

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TRENDS AND DESIGN RESPONSES

Three primary trends are driving the development of new wire and cable management systems and enhancements to existing products. These are workstation flexibility, high-performance cabling, and aesthetics.

Flexibility: People are working in ways – and spaces – that were unimaginable just a few years ago. As a result, a building's wire and cable infrastructure must be able to be easily upgraded, reconfigured, and relocated. Wire and cable management systems provide both operational and systems flexibility. Operation flexibility encompasses day-to-day issues such as changing employee teams and the growing use of integrated, multifunctional spaces. Systems flexibility, on the other hand, enables a building to accommodate new or expanded technologies over its lifetime.

Recent innovations that enhance flexibility include:

- Modular connectivity inserts with common interfaces that simplify installation and alteration of high-performance data/communications systems.
- Systems that feed cable directly into modular office furniture.
- Infloor system components – ducts, junctions, presets, and activations – that have been redesigned to increase cable capacity.
- Poke-thru devices that have been engineered to provide improved data/communications capability.
- Integrated multimedia boxes that combine multiple services at a single point of use.
- High-capacity, multichannel perimeter systems that accommodate the larger number of cables required for modern workstations.

High-performance cable: While copper cabling (e.g. Category 5, 5e, 6) continues to be a popular data/communications medium, optical fiber cable has also become a major influence. In fact, many surveys indicate that optical fiber will soon overtake copper cable in horizontal applications – frequently called fiber-to-the-desk.

The data transmission capability of high-performance copper and fiber optic cabling can be compromised by excessive bending. Recent research demonstrates that a 2.0-inch bend radius affords ample protection for the vast majority of copper and fiber cable used in horizontal applications. An infrastructure with 2.0-inch bend radius being installed for a copper system

WIRE AND CABLE MANAGEMENT OPTIONS

Wire and cable management systems can be grouped into five primary categories.



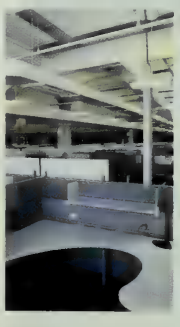
Infloor systems include underfloor duct and raised floors. Underfloor duct systems provide support and security for cabling in reinforced concrete and steel constructions. Raised floor boxes offer convenient access to data/communications cabling.



Open space systems, such as floor boxes and poke-thru devices, serve areas that are not adjacent to partitions. These systems provide direct access to cabling or they can feed into modular office furniture. Installed in core-drilled holes, poke-thru fittings maintain the fire rating of floors. Service poles are another option for open space applications.



Perimeter systems route wiring and cabling securely along walls. These systems are often specified for conference rooms, offices, classrooms, and training centers. Unlike with conventional conduit, cabling that is laid into a perimeter system remains easily accessible at all times. These systems are also easy to expand or reconfigure.



Overhead systems offer a high degree of flexibility, both in terms of locating the components and accessing the cabling contained within them. Cable trays are available in a variety of styles including center spine, solid bottom, and ladder. Although cable tray was historically installed above drop ceilings it is increasingly showing up in open ceiling applications.

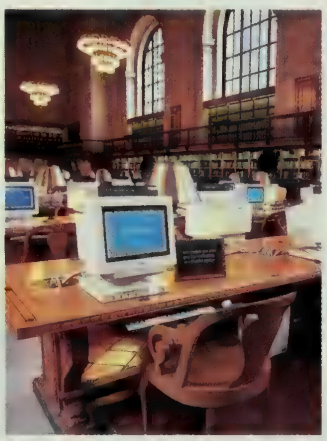


Point-of-use solutions focus on the workstation. Here, the objective is to provide communications connectivity that is compatible with all cabling pathways. Modular systems enable a diverse array of connecting components to be installed in standard faceplates or mounting bezels.

Maximum flexibility for CNN Facility. New space at the CNN New York bureau accommodates up to 90 people who work for CNNfn, the network's full-service financial news and Internet directory, search, and navigation service. A major concern was for maximum flexibility in the cabling infrastructure. The solution was solid-bottom cable trays suspended from the open ceiling and containing an array of data/communications cable. Vertical raceways with customized perforated metal covers bring wires and cables from the overhead space down to the news desks.



Maintaining the ambience of the New York Public Library's main reading room. The challenge was to provide easily available database and Internet access for the library's computers and individuals' laptops right at the reading tables. Steel raceway under the tables feeds custom-made flush bronze enclosures that complement the rich finish of the massive oak tables. In a new self-service copy facility and a multimedia center, Wiremold Access® 5000 raceway helps to maintain the room's decor while providing convenient access to power and data/communications services. The cover features a white oak veneer that was stained to match the existing woodwork.



Feeding high-performance cable to multiple workstations. When Briggs Corporation relocated its headquarters to an early-1980s building in Des Moines, Iowa, the building was gutted and the existing cabling was removed. The renovated structure, including open office space, a training facility, and computer and communications centers, needed flexible and aesthetically pleasing wire and cable management systems. One challenge was bringing high-performance voice and data cabling to open spaces on the second and third floors. Installed in core-drilled holes, Walker® poke-thru devices provide direct links to modular office furniture.



will also meet the bend radius standards for optical fiber media in the event that the facility ultimately switches to fiber-to-the-desk. In other words, wire and cable management systems can be designed independent of the hardware and system protocol that will eventually be used. New designs ensure that wire and cable management systems will accommodate all high-performance cable:

- Systems that maintain the cable bend radius around corners and junctions.
- Integral storage loops for optical fiber cable.
- Service activations with adequate space for high-performance cable.
- Angled connectivity device brackets.

Aesthetics: In the early days of the data/communications revolution, many building owners and facility managers were willing to sacrifice aesthetics because the benefits of local area networks and other communications systems outweighed the sight of tangled cables snaking around desks. More recently, however, an aesthetically pleasing work environment has become a high priority and wire and cable management systems have been redesigned. Examples of this trend include:

- A variety of attractive metal and nonmetallic service fittings and covers for infloor systems.
- Flush and recessed activations that are very nearly invisible.
- System components that are commonly used together, such as service activations, faceplates, and connectivity devices, are color matched for a seamless look.
- Cable tray that can be custom colored for open-ceiling installations.
- New generation perimeter systems that feature eye-pleasing profiles, specialized materials such as stainless steel, and extensive color options.

Early Involvement Maximizes Benefits

Unfortunately there is still a tendency to think of data/communications installations as unrelated systems that can somehow be slipped into a building moments before the tenants or users arrive. According to some estimates, 75 percent of workstation wiring and cabling is installed after a new or renovated building is occupied. Achieving the optimal wire and cable system infrastructure requires the active involvement of the design team and building owners throughout the design process. Members of the design team

who do not consider wire and cable management until late in the design run some risks, including:

- Eliminating certain highly effective cabling pathway solutions. Cellular deck and infloor duct systems, for example, must be considered early in the process. Optimal placement of other infrastructure components, such as cable trays, may be impossible if the design does not provide for them.
- Reducing building flexibility. Effective utilization of open space depends on the availability of communications technology and ability to reconfigure the space with minimal down time.
- Failing to consider the impact of future technology. While no one can predict the future with complete certainty, providing a robust, accessible, adaptable cabling infrastructure is an effective strategy for maintaining a building's long-term function.
- Increasing the costs and difficulty associated with installing and changing the cabling system.
- Encouraging a patchwork of unattractive stopgap wiring methods.

In the absence of a well-planned technology infrastructure a typical response is to specify a high-capacity distribution system. This may not be the most cost-effective long-range solution, and it certainly adds up-front costs. Excessive capacity can also compound design and aesthetic problems. If the solution is not merely adding capacity, then what is it? There are several points to consider before answering this question:

How many services are needed at each point of use?

Typical workstations require five services: filtered, surge protected, isolated ground AC power; unfiltered AC power; LAN connection; modem line; and telephone line. A growing number of workstations also need specialized services, such as desktop video.

Is the cabling system going to need to be upgraded to meet future technology?

The answer is almost certainly "yes." This means accessibility for change-out is essential. The cabling infrastructure must also accommodate the required bend radius of fiber optic and high-performance copper cable. Make sure the system will have the expected bandwidth and technical performance when needed.

How frequently will it be necessary to move people or add workstations?

The cabling infrastructure must be flexible for moves, adds, and changes with minimal down time.

How much do you want to see?

Aesthetic requirements vary from workspace to workspace. What is effective in a back-office space might not be appropriate for a conference room. Investigate which cabling infrastructure components best suit the surrounding space.

CONCLUSIONS

Communications cabling is an integral, building-wide infrastructure. It is a component of design that is of growing importance to owners and building managers. Manufacturers have responded with wire and cable management solutions that:

- Ensure maximum operational and systems flexibility.
- Accommodate any and all data/communications cabling that would normally be installed from a telecommunications closet to a workstation.
- Enhance workplace aesthetics.

Going forward, much of the impetus for new wire and cable management products and system enhancements will be driven by the need to effectively manage increasingly complex data/communications requirements in business and institutional environments where flexibility is a paramount concern.

The Wiremold Company, headquartered in West Hartford, Conn., is a leading manufacturer of wire and cable management systems, power and data quality products, and data/communications connectivity systems.

Rapidly evolving data/communications technology and the need for flexible workstations have increased the amount and complexity of wiring and cabling. At the same time, building owners demand improved aesthetics and lower life cycle costs. The Wiremold Company anticipated these changes and introduced the concept of integrated wire and cable management systems. Leading product lines include Walker® infloor systems, SpecMate™ cable tray, the Interlink Cabling System, the Activate™ Connectivity System, Wiremold® perimeter raceway systems, and Sentrex® power and data quality products.

The Wiremold Company has embarked upon an aggressive program of product development that focuses on customer needs. A top priority is to extend future-ready enhancements, such as bend radius support, across a broad range of wire and cable management systems.

The Wiremold Company has expanded its global sales, support, and manufacturing capabilities. Its strategically located staff is "on the ground" with a thorough understanding of construction techniques and local codes. Value-added services include product testing and securing appropriate country approvals, design engineering support, and on-site project coordination.

LEARNING OBJECTIVES:

After reading Wire and Cable Management Systems you will be able to:

- Describe the workplace needs for wire and cable management.
- Explain how wire management can maximize function in the workplace without being visually obtrusive.
- List the benefits of including wire and cable management early in the design process.

INSTRUCTIONS

Refer to the Learning Objectives above.
Complete the questions below. Then turn the page upside down and check your answers. Fill out the reporting form on page 198 and submit it or use the Continuing Education reporting form on *Record's* web site www.architecturalrecord.com to receive two AIA/CES Learning Units including one hour of health safety welfare credit.

QUESTIONS:

1. What are recent innovations that enhance flexibility in cable management system design?

2. What are the requirements for high performance cable design?

3. How are wire and cable management systems achieving improved aesthethics?

4. What are the risks of not considering wire and cable management early in the building dersign process?

5. What are the five primary categories of wire and cable management systems?

ANSWERS:

1. Recent innovations that enhance flexibility include modular connectivity inserts, systems that feed cable directly into modular office furniture, infloor system components that have been redesigned to increase cable capacity, poke-thru devices that have been engineered to provide improved capability, integrated multimedia boxes, and high-capacity multichannel perimeter cable systems.

2. High-performance cable requires a 2.0 inch bend radius in systems, integral storage loops for optical fiber cable, service activations with adequate space for high-performance cable, and angled connectivity device brackets.

3. The trend toward aesthetically pleasing wire and cable management systems includes: a variety of attractive metal and nonmetallic service fittings and covers for infloor systems, flush and recessed activations that are very nearly invisible, system components color matched for a seamless look, custom colored cable tray for open-ceilings, and perimeter systems with new profiles and specialized materials such as stainless steel, and color options.

4. Risks from not including wire and cable management early in the design process include: eliminating certain highly effective cabling pathway solutions, reducing flexibility in reconfiguring the space in a building, maintaining a building's long-term function, increasing the costs and difficulty associated with installing and changing the cabling system, and encouraging a patchwork of stopgap, unattractive wiring.

5. The five primary categories of wire and cable management systems are: infloor systems including underfloor duct and raised floors, open space systems serving areas that are not adjacent to partitions, perimeter systems routing wiring and cabling securely along walls, overhead systems, and point-of-use solutions.

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Maple Flooring Manufacturers Association Presents

WOOD SPORTS FLOORS: *Minimizing Damaging Effect*

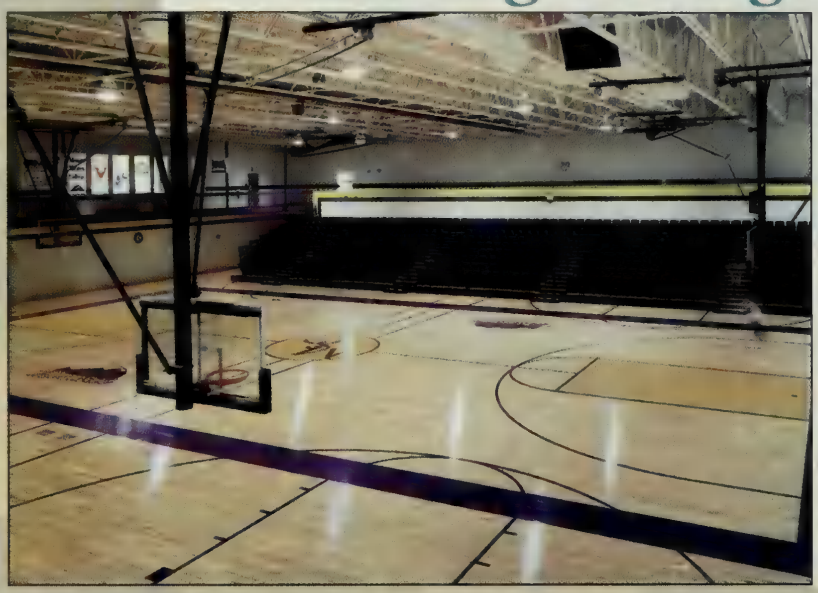


Photo: Courtesy of Stanmar Inc.

Naturally beautiful. Shock absorbing. Incredibly durable. Many hardwood floors outlive the buildings in which they are installed. In a floor, northern hardwood maple exhibits flexibility, resilience, durability, finishability and low-demand maintenance.

This section is intended to help architects understand the nature of maple hardwood flooring, now in use on nearly 60 percent of all U.S. sports floors, the effects of moisture on sports floors, proper installation procedures and how to spot – and avoid – potential problems.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read ***Wood Sports Floors: Minimizing Damaging Effects.*** To earn two AIA/CES Learning Units including one hour of health safety welfare credit, answer the questions on page 164 and follow the reporting instructions on page 198. Or use the Continuing Education self report form on *Record's* web site, www.architecturalrecord.com.

LEARNING OBJECTIVES:

After reading ***Wood Sports Floors: Minimizing Damaging Effects*** and answering the self-test questions at the end, you will be able to:

- Describe the impact of excessive moisture or the absence of sufficient moisture on hardwood sports flooring materials.
- Explain types of moisture problems with wood floors.
- Identify items to look for in wood flooring specifications in order to avoid problems related to moisture.

It is an appropriate time for this particular lesson: the U.S. sports floor market growing at a rate of between 10% and 20% annually. There will be nearly 5,000 sports floors installed in the U.S. next year. Perhaps surprisingly, the most highly visible market for hardwood sports floors – colleges and universities and the expansionist National Basketball Association – accounts for a miniscule proportion of newly installed sports floors. About two-thirds of all U.S. sports floors today are installed in primary and secondary schools. There is a growing market in health care institutions which more and more are devoted to preventive medicine, and which more and more frequently include workout facilities.

"These, more and more, are environments in which you may be conducting an aerobics class in the afternoon and a Lamaze class in the evening. Hardwood flooring functions extremely well in that kind of multi-purpose environment," says Kevin Hacke, executive director of the Northbrook, Il.-based MFMA.

Northern hard maple is dense, strong, remarkably hard and supremely durable. Maple, perhaps surprisingly, is also among the hardest of the hardwoods, 12% harder then red oak, 7% harder than white oak. It offers a wide range of uses and color possibilities. It is close-grained, hard-fibered, free from slivering and splintering, and polishes well under friction.

For these reasons, hard maple is the near universal choice for sports floors. It has a natural beauty when given a transparent finish and is suited for a variety of uses. Northern hard maple has an unusual ability to resist pointed pressure without abrasion. It is easily covered with high polishes and attractive finishes.

The quality of this maple hardwood begins in the northern forests above the 35th parallel where shorter growing seasons and longer winters produce a densely grained maple with rich, consistent color and fewer imperfections. However, because wood is a natural product, it is subject to color variations resulting from differing growing conditions. The color of the heartwood is brownish; the sapwood is much lighter. Consistency of color cannot be controlled in the manufacturing process, and color variation is not a grading defect. If consistency of color in your installation is an important consideration indicate that in any specifications.

In 1997, the most recent year of record, 44.5 million square feet of sports flooring of all types was installed in the U.S. MFMA–graded maple flooring accounted for nearly 23 million square feet, a little more than half of all installed flooring of all types. Nearly 30 million square feet of sports flooring went into primary and secondary schools, either as new or retrofit projects.

Health clubs and wellness centers account for another 10 percent of the overall sports floor market.

"Maple works well in the healthcare environment," says Hacke. "It is sanitary, lasts a long time and is easy to maintain."

Robert Riddlemoser, a principal at RDS Architects, San Francisco, says elementary and secondary schools are being built at a surprising rate, that nearly all include at least one sports-or-general-activity gym floor – maybe more – and that when the discussion over flooring types gets to the basketball coach, he wants hardwood.

"It's a high-quality product with a high-quality finish," he says. "We always discuss other options, but we rarely sell them."

Because wood, in its natural state, is porous and water-laden, as a finished product it becomes a unique and valuable flooring material.

It is user-friendly to a degree that few other traditional court surfaces can match. When an athlete impacts a hardwood sports surface, the impacting force is translated into two resulting forces, one absorbed by the floor; the other returned to the athlete. While hard surfaces like concrete and asphalt provide little or no force reduction for the athlete upon impact, MFMA sports floor systems absorb these impact forces and are rated by the percentage of force reduction they provide compared to hard surfaces.

For example, a sports floor with a force reduction value of 60 percent will absorb 60 percent of the impact force and return 40 percent of that force to the athlete. Since different sports make differing demands on athletes, various force reduction characteristics may be prescribed for various sports.

Eight MFMA mills nationwide engineer performance characteristics into flooring systems. Standards of performance may be specified to provide particular characteristics. Much can be accomplished through the flooring itself. You can make a wood floor surprisingly soft. That may not be appropriate for basketball floors, but it might be for aerobic centers. You can also "stiffen" a hardwood floor.

"It is incumbent on the architect to look at his facility, understand what it will be used for and bring those factors into play in specifying the performance characteristics and floor type most appropriate for those uses," says Hacke.

After extensive consultations with clients, Riddlemoser finds it relatively simple to specify flooring systems himself. "We are doing primarily schools," he says. "Our clients don't need professional basketball floors, but they don't need injuries either. I believe hardwood courts are a factor in reducing injuries, and I know the product has been tested for performance."

Maple flooring is nearly exclusively the material of choice, not only for exacting college and university basketball courts, but also for, say, the continuous grinding of wheels in a public roller skating rink. Maple floors are the most highly demanded surface for volleyball, aerobic and dance floors, racquetball and handball courts and dozens of other uses.

The Characteristics of Maple Fooring

The issue of life cycle costing is a critical evaluation criterion for facility owners and managers. A study conducted between 1993 and 1994 by Birmingham, Michigan-based Ducker Research Co., Inc. for the Maple Flooring Manufacturers Association compared the cost of maple flooring to PVC and poured urethane floors. Ducker interviewed 145 building owners, maintenance heads at primary and secondary schools, colleges and universities and building contractors. The study concluded that the life-cycle cost of maple flooring, based on a 38-year life span, is, on average 42 percent lower than the cost of PVC floors and 40 percent lower than poured urethane floors.

"Schools frequently demand maple because of tradition and because of longevity," says Riddlemoser.

Things to Look For When Specifying Hardwood Floors

1. Specify a reputable hardwood sports flooring contractor with significant experience in projects of the size and scope of yours.
2. Specify a subfloor system that matches the primary activity on the floor.
3. Specify pre-installation concrete slab tolerances.
4. Specify pre-installation moisture content of wood flooring.
5. Specify pre-installation conditions of the room, including fully functioning HVAC, constant temperature and humidity, weather tightness.
6. Specify industry-recognized installation guidelines throughout process.
7. Specify following the same post installation procedures.

The MFMA–graded maple is produced from trees grown north of the 35th parallel, a line running roughly from Cape Hatteras through Memphis and Albuquerque to San Luis Obispo, CA., where shorter growing seasons and longer winters produce maple with closer, more uniform grain, consistent color and fewer imperfections.



First Grade

Several grades of maple flooring are available: First Grade hard maple is the ideal solution for gymnasiums, dance floors, churches, hospitals, offices, homes and other applications where fine appearance and long wear are sought. First Grade maple is characterized by a practically defect-free face. Second and Better Grade flooring provides the same long life, but admits tight knots and slight imperfections in the face. Third Grade hard maple offers the same good-wearing qualities of higher grade flooring, but is a medium-cost material characterized by wider variations in color and texture caused by wider variations of grains and growth marks.



Second & Better Grade

Colleges and professional sports franchises rely almost exclusively on top-grade maple flooring "because variations in lower grades show up so strikingly in the eye of television cameras," says Roch Manley, an architect and flooring specialist for LSW Architects, Vancouver, WA. But LSW uses Third Grade maple for primary and secondary schools projects not only for its lower cost, but also because "its appearance is more varied, striking and interesting to me than clear maple," says Manley.



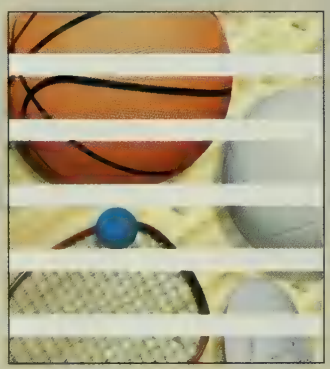
Third Grade

Because Third Grade maple typically comes in shorter lengths than higher grades, says Manley, LSW recently amended in-house flooring specifications to insist

on 8-in.-on-center sleepers both for performance and ease of installation. Even with the additional sleepers, says Manley, a Third Grade floor can be installed less expensively than with either of the higher grades of flooring. "Installers still want to bid projects based on a 12-in. standard," he says. "It's something we have learned to watch for."

Water and Wood: Moisture and Your Flooring

MFMA manufacturing specifications require that maple flooring be milled from kiln-dried lumber, which typically has a moisture content of between 6% and 9%, but "proper" moisture content at installation can range from 4% to13 % depending upon the geographic location of the job and the time of year.



Flooring installed along the Gulf Coast, for instance, can be expected to acclimate to a moisture content of between 11-13%, while the same flooring installed west of the Rocky Mountains, would acclimate to between 4-8%.

Even after finishing and sealing, wood retains its "hygroscopic" character, which means that it will gain or lose moisture until it is in equilibrium with the temperature and humidity of the surrounding air. When wood is neither gaining, nor losing, moisture it is said to have reached its "equilibrium moisture content" (EMC). As a rule of thumb, relative humidity of 25% produces an EMC of 5%; relative humidity of 75% yields an EMC of 14%. As a practical matter, a 50% change in humidity can result in expansion or contraction of a 2 – inch board of about 1/16-inch – -a full inch over 16 boards. Over the width of a 10-ft-wide floor three inches of expansion or contraction can occur.

Intermediate expansion spaces ("washer rows") are left between flooring strips to allow for calculated expansion of the wood flooring material when humidity rises. Depending upon the annual extremes in relative humidity that are typical for the region, the interval required between intermediate expansion spaces in the floor can vary greatly from one installation to another. Your flooring manufacturer will provide you with the reference materials and instructions you need in order to correctly determine the intermediate expansion space interval for each installation.

Protective coatings slow the process of moisture absorption and release, but they cannot prevent it. Thus, it is critical, for your sports floor to perform best, to maintain humidity of between 35% and 50% and temperatures of between 55 and 75 degrees Fahrenheit year round to maintain the wood's original moisture content.

Before installation, maple flooring must be "acclimated."

Wood flooring should not be delivered to the jobsite until plastering and painting are completed and dry because moisture evaporates from damp walls and will be absorbed by the flooring.

It should be delivered to the building site at least 72 hours prior to installation and stored indoors under the conditions above. The building should be weather-tight and HVAC should be functioning throughout the process. Flooring should not be unloaded in the rain and should be safe from condensation. Continual dry heat during its acclimatization will reduce its moisture content and may result in buckling of the installed floor if moisture is later regained. If flooring is subject to dampness, it will absorb unwanted moisture, expand and later contract as it dries, leaving spaces or cracks in the floor.

It also is critical that cement slabs be fully cured (this can take 60 days or longer) and tested for moisture before delivery and installation of flooring.

Moisture content in concrete is measured in terms of pounds of water vapor emission per thousand square feet per 24 hours. There are several accepted methods for measuring the moisture content of concrete, including the Polyfilm test and the Calcium Chloride test.

The Polyfilm test is widely accepted, and uses inexpensive materials commonly found on the job site. If the slab is too wet, the Polyfilm test will show the presence of excessive moisture and, thereby, indicate the need for additional curing time and/or testing by another method. If a quantified reading of the slab's moisture content is required, a calcium chloride test will provide measurable results.

Always check with the maple flooring manufacturer, but three pounds of water vapor emitted per thousand square feet of on-grade concrete slab per 24 hours is generally recognized as an acceptable moisture content level for beginning the installation of a wood floor.

Begin the installation process by loosely laying sheets of six-mil polyethylene over the concrete slab, allowing sufficient plastic for a four-to-six-inch rise on walls and joints. Seal the seams with tape or with mastic.

Because moisture can rise through concrete by capillary action, it is essential that moisture-vapor barriers are properly installed between the slab and the flooring, most typically PVC vinyl, polyethylene film or roofing felt over asphalt mastic. It is important to remember that concrete, like wood, expands when it absorbs moisture and contracts when it loses moisture.

Wood does not shrink or swell equally in all directions. It changes about 0.1% along the grain, but up to 15% across the grain.

How to Spot and Avoid Trouble in Hardwood Floors

Some movement is to be expected in all maple floors, and room for expansion is allowed around perimeters and interior columns and flooring obstructions (electrical outlets, posts, etc.) during proper installation of most systems. Occasionally, but not in all installations, expansion spaces will be required within the floor itself. In the absence of a humidifier, it is not unusual for maple floors to contract slightly during winter months when heating systems are turned on. Slight spaces that appear in winter most likely will disappear in spring. There are conditions that can occur, however, that are abnormal and most often are repairable if dealt with when first noticed.

Moisture Problems Inherent in Wood

- Absorption of moisture causes wood to
- Loss of moisture causes wood to shri
- Shrinkage begins at 25-30% mo content, the fiber saturation point.
- Swelling occurs as wood gains mois at between 0-25% moisture content.

Cupping of wood floorboards, a condition that appears as a concavity, occurs when the bottom of the flooring is wet. Cupping occurs because the top surface of a board dries faster than the bottom. The first step in repairing a cupped floor is to identify and eliminate the source of moisture. Once moisture is controlled, cupping usually can be cured, and most hardwood floors will repair themselves over time. Fans can speed the process.

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Crowning is the opposite of cupping and can be caused by moisture on the floor's upper surface. A more common cause, however, is the contraction of a previously cupped floor that has been sanded before the floor has had a chance to dry thoroughly.

Wood lignin is the material between individual cells in a living tree. It is the glue that holds the plant cells together. Lignin is weakened by significant moisture changes that cause wood to expand and contract. Significant or repeated moisture changes can cause flooring to split in the direction of the grain.

When flooring expands but has no release point for the pressure, some floors will buckle. Others will cup. If, however, they are held so tightly in compression, individual wood cells are crushed in expansion, a condition known as "compression set" can develop. Once compression set takes place it is as if the flooring had been through a trash compactor, even after drying. It will retain the shape it assumed under compression. Most often, a rapid change in moisture, a flood for instance, will cause compression set.

Float a stick of wood in a bathtub. It eventually will disintegrate. Wood fibers can absorb only so much moisture. Beyond its saturation point, decomposition begins, a condition known as fiber saturation. Unattended moisture problems can lead to fiber saturation.

Panelization, or side-bonding, is a condition that occurs more frequently with the widened use of water-based finishes. Some water-based products have a tendency to act as a welding agent in gluing floorboards together. If a facility experiences a very dry season, the resulting chemical bond caused by water-based finishes sometimes is stronger than the lignin bond of wood itself, and a resultant longitudinal splitting of the floorboards that appear as racing stripes can occur. In parts of the country that experience distinct seasonal changes, panelization occurs more frequently. In Denver and Miami, say, it is a relatively rare occurrence, because Miami is generally always humid, Denver always dry. Panelization occurs most frequently during the first winter of a floor installed in spring or summer. When the floor shrinks for the first time, shrinkage collects at the weakest points, often splitting a board into "panels" that can run the length of the floor. Maintaining the facility within a 15% humidity range will mitigate the problem.

INSTALLATION CHECKLIST & MOISTURE TROUBLESHOOTER

1. Is the building enclosed and airtight?
2. Is all block, brick or masonry work complete?
3. Is all painting finished and fully dry?
4. Is permanent light, heat and ventilation operating?
5. Is all overhead work complete?
6. Is the floor free of obstructions?
7. Indoor temperature, humidity?
8. When was concrete poured; is it dry?
9. What method was used to test concrete dryness?
10. Is concrete level to specifications?

SEALING AND FINISHING YOUR WOOD FLOOR

There are two basic methods for application of seal and finish for wood athletic floors. Both are four-coat specifications. The first uses one coat of seal and three coats of finish; the second, two coats of seal and two coats of finish. Polyurethanes, and oil-based urethanes are traditional finish products, however there is growing concern that oil-based finishes release volatile organic compounds (VOCs) that may degrade indoor air quality.

Water-based finishes may require more than the two or three coats that have become the standard application procedure with traditional oil-based products. It also is critical that sealants, paints and final finish materials be carefully coordinated to insure proper adhesion. The MFMA publishes a list of finishes that have been performance-tested by independent laboratories.

"My advice? Make sure each of the components of the floor finishing system meets the requirements of local air quality regulators and that the products are compatible," says LSW's Manley. Failure to coordinate finish materials can result in bubbling, or peeling, of one or more of the finish layers, any of which can ruin the appearance of a hardwood athletic floor.

"Traditional oil-based sealers we've used in the industry for years may exceed air quality regulations by several hundred grams per liter," says Manley. "There are, as an alternative, a lot of good products out there that are water-based. But you must be careful with them or you will create problems."

PROPER MAINTENANCE PREVENTS PROBLEMS

Daily maintenance of a hardwood floor does more than keep up the appearance of the floor: it ensures that moisture-related problems are avoided whenever possible. Making certain that heat, air conditioning and humidity are set properly and that windows and doors are sealed against weather can reduce the impact of moisture on your floor. The use of appropriate equipment and cleaning agents also are essential to proper maintenance. The Maple Flooring Manufacturers Association has produced a bilingual (English and Spanish) video with instructions for proper maintenance.

WORK WITH SPORTS FLOORING EXPERTS

Hardwood sports floors differ greatly from common hardwood floors, both in design and installation. To ensure a long-lasting, trouble-free playing surface, it is important to seek the advice of experienced contractors. ■

Established in 1897, the *Maple Flooring Manufacturers Association* is a trade organization representing the maple flooring industry. The MFMA is the authoritative source of technical and general information about maple flooring and related sports flooring systems. Its membership consists of manufacturers, installation contractors, distributors and allied product manufacturers who subscribe to established quality guidelines. Through cooperative member programs, MFMA establishes product quality, performance and installation guidelines; educates end users about safety, performance and maintenance issues; and promotes the use of maple flooring products worldwide. Please call 847/480-9138, or write: MFMA, 60 Revere Drive, Suite 500, Northbrook, Il. 60062. www.maplefloor.org. E-mail: mfma@maplefloor.org.

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LEARNING OBJECTIVES:

After reading ***Wood Sports Floors: Minimizing Damaging Effects*** and answering the self-test questions, you will be able to:

- Describe the impact of excessive moisture or the absence of sufficient moisture on hardwood sports flooring materials.
- Explain types of moisture problems with wood floors.
- Identify items to look for in wood flooring specifications in order to avoid problems related to moisture.

INSTRUCTIONS:

Refer to the learning objectives above.

Complete the questions below. Then turn the page upside down and check your answers. Fill out the self report form (page 198) and submit it or use the Continuing Education self report form on *Record's* web site, www.architecturalrecord.com to receive two AIA/CES Learning Units including one hour of health safety welfare credit.

QUESTIONS:

1. What are the characteristics of maple flooring that contribute to it being the most used flooring material for sports flooring?

2. In what applications would you specify a Third Grade maple floor?

3. What characteristics of northern grown maple woods make it desirable for flooring?

4. How should maple flooring be acclimated before installation?

5. What causes the difference between cupping and crowning in wood floors?

ANSWERS:

1. The characteristics of maple flooring that make it desirable for use in sports flooring are that it is naturally beautiful, easy to maintain, shock absorbing, and durable. Based on a 38 year life span, the cost of maple flooring is 42 percent lower than PVC floors and 40 percent lower than poured urethane floors.

2. Third Grade hard maple offers the same long wear as higher grade maple, but is a medium-cost material characterized by wider variations in color and texture caused by wider variations of grains and growth marks. It is typically not used on sports floors of colleges and professional sports because variations in lower grades show up strikingly through television cameras. Third Grade maple is used for primary and secondary school projects because of its lower cost and there is no objection to its varied appearance.

3. The most desirable maple is produced from trees grown north of the 35th parallel where shorter growing seasons and longer winters produce maple with closer, more uniform grain, consistent color and fewer imperfections.

4. Maple flooring should be delivered to the building site at least 72 hours prior to installation and stored indoors. The storing conditions should be temperatures between 55 and 80 degrees Fahrenheit and humidity between 30 and 50 percent. Wood flooring should not be delivered to the jobsite until plastering and painting are completed and dry and concrete is cured because moisture evaporates from damp materials and will be absorbed by the flooring.

5. Cupping and crowning both result from moisture, but on different surfaces. Cupping of wood floorboards occurs when the bottom of the flooring is wet. The boards cup because the top surface of the board dries faster than the bottom. When the moisture is eliminated, the boards will usually repair themselves over time. Crowning is the opposite of cupping and can be caused by moisture on the floor's upper surface. A more common cause, however, is the contraction of a previously cupped floor, which was sanded before the floor has had a chance to dry thoroughly.

FOR MORE INFORMATION:

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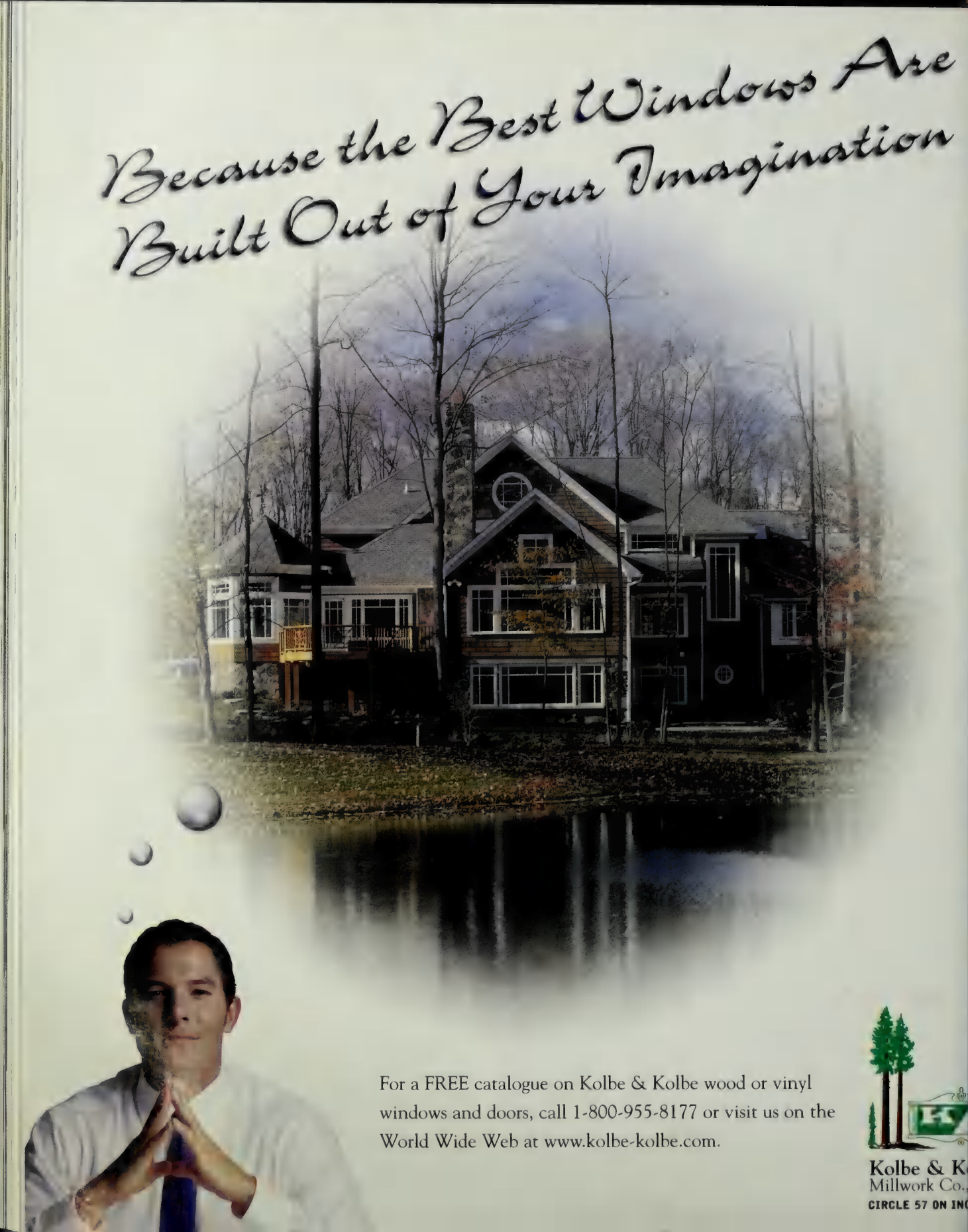


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RESIDENTIAL

More houses! It's clear that architects can't get enough information on residential design that is specifically geared to them. While RECORD Houses, presented annually in our April issue, displays a wealth of domestic design, ranging from the spectacular to the experimental, architects need both practical advice or wonderful inspiration, whether for an apartment, a condo, a simple suburban house, or that expansive mansion on 22 acres.

Here's one of the more typical problems architects face: how do you get carpenters to build certain details the way you design them—especially when they know "a better way"? It's a challenge Jim Cutler, FAIA, confronts every time he draws one of his wonderfully inventive wood details. "I try to work with carpenters who I've worked with before and who know the way I think," Cutler says. But that, of course, is not always possible.

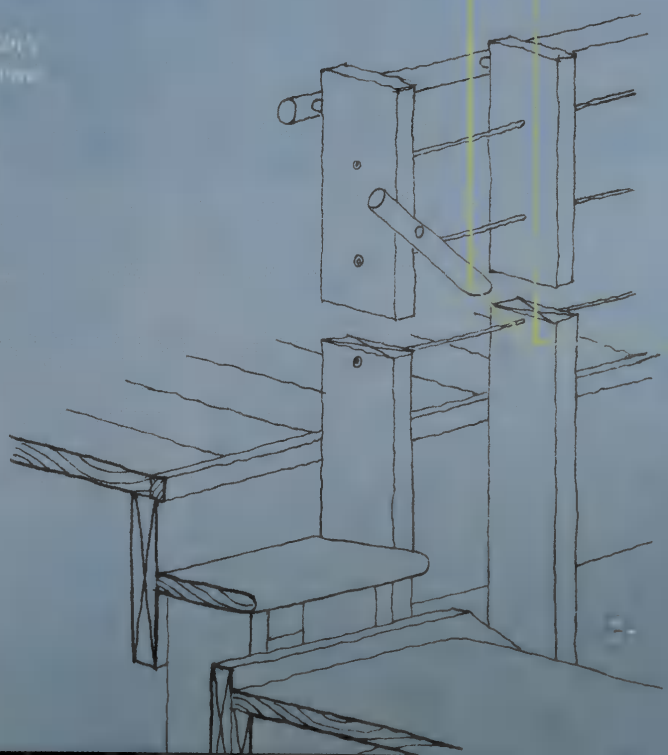
Other quandaries: How do you choose sustainable materials and products? What's the best way to get materials in and out of a cramped apartment building? Who do you turn to when housing inspectors are arbitrary and capricious? How do you track down funds for low-cost housing projects?

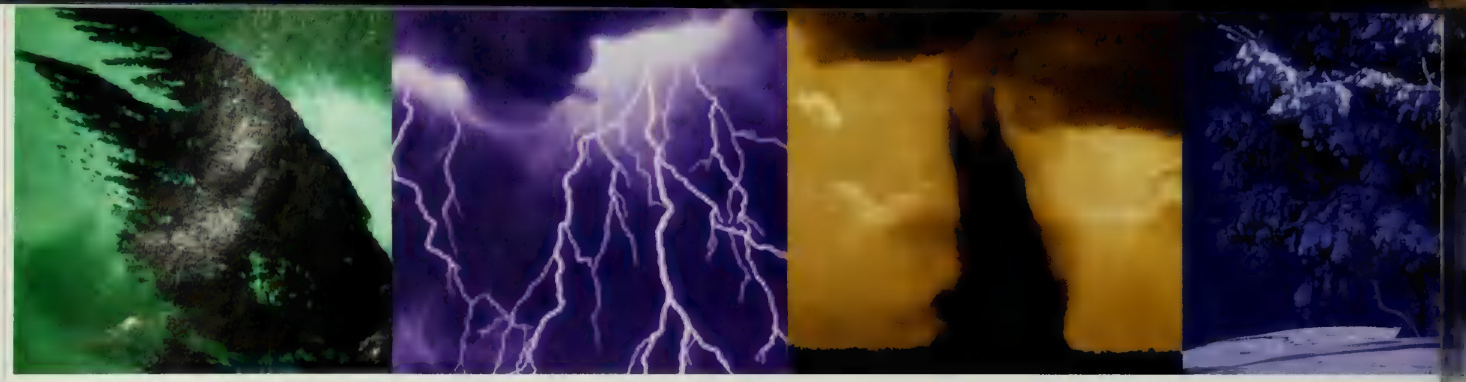
Knowing the answers to these questions not only makes the architect's job easier, it ultimately contributes to the quality of people's lives and of housing overall—every architect's ultimate goal. And, of course, the goal of this new quarterly section. *Wendy Talarico*

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170 **Wood Detailing**

179 **Residential Products**





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CIRCLE 58 ON INQUIRY CARD

Residential News



KEEPING IT RAW: A NEW NYC BUILDING CAPITALIZES ON ITS INDUSTRIAL ROOTS

New York City is full of living spaces converted from factories, warehouses, and other buildings past their prime. In fact, dwelling in a converted loft is a badge of a true New Yorker. It's all the rage in stylishly hip neighborhoods such as Soho and Tribeca and continues to be a primary housing vehicle for artists.

Tamarkin Architecture & Development, a New York City firm, has taken the loft concept a step further with a new 11-story residential building in Manhattan's West Village. The structure and its units have the raw feel and openness of a factory conversion, as well as other characteristics of converted apartments, but the structure is entirely new.

The $13.5 million project includes seven floor-through apartments and two penthouse duplexes. Purchasers acquire open, minimalist spaces they can rework as they see fit. Concrete floors and columns add to the industrial feel. An unadorned lobby will double as workspace for a part-time doorman. The concept seems to be working: the apartments started selling immediately early last year, with a top price of more than $4 million.



The far West Village is seeing a flurry of such development. Several new apartment buildings are on the rise, as is the Greenwich Village Hotel. Among the architects participating in the development is Richard Meier, FAIA, who is designing a 2-story restaurant, a 15-story condominium building, and a 6-story hotel in one corner of the neighborhood. *Soren Larson*

WINNERS CHOSEN IN KOSOVO HOUSING IDEAS COMPETITION; EXHIBITION GOES ON TOUR TO SEVERAL MUSEUMS

After an open call in which 205 proposals were submitted from more than 30 countries, Architecture for Humanity has selected 10 finalists and 20 honorable mentions in its competition to design transitional housing for refugees of the war in Kosovo. The organization's stated goal was to foster the development of housing that can relieve suffering and speed the transition to a normal way of life. [For more on Kosovo, see page 74.]

An exhibit of the entries, displayed last month at New York City's Van Alen Institute, will be at the RIBA Gallery in London through January and then will travel to Paris, Bucharest, Florence, and Washington, D.C.

Cameron Sinclair, the New York City architect who organized the competition, said some entries looked at very inexpensive solutions for short-term shelter, while others explored temporary urban housing schemes, studied the potential for housing-unit aggregations, or proposed low-tech building systems or alternative construction materials. Proceeds from the competition will go to War Child USA and its relief work in Kosovo, Albania, Macedonia and Bosnia.

Turkey is also the object of relief-housing efforts. After the earthquake there last year, Simple Building Products of San Diego assembled architects and engineers to provide temporary housing. The teams used ArchiCAD-based modular building systems to construct, in two weeks, relief coordination centers and housing for as many people as possible. *S. L.*

In Brief

HUD helps The Department of Housing and Urban Development is providing $792 million in assistance to nonprofit groups around the country to create 8,943 subsidized apartments for poor senior citizens and people with disabilities. Most of the apartments funded by the grants will be newly constructed units, but some will be existing units, purchased and rehabilitated as necessary. The apartments will provide housing for more than 11,000 people.

Space case A proposed design for a residence in outer space is now viewable on the Web. An online home decor site, Myhome.com, has teamed with the Space Island Group (www2.dowco.com/spaceisland), a private consortium, to design the interiors of what is planned to be the first space resort. Space Island's strategy is to join about 12 huge shuttle tanks, left in orbit by NASA, into a large ring, creating space for hotels, entertainment, and living quarters. No specific timetable has been set for the destination's opening.

Mad as hell A new homeowners' group called the National Alliance Against Construction Defects (www.jps.net/hollister1) is attempting to stop builders from profiting from structurally unsound and badly built homes. The group contends that with rampant code violations and head-turning by inspectors, something needs to be done to allow more governmental control during new-home construction.

Jim Cutler's penchant for trees and fine detailing drives his designs for three new houses

By Sheri Olson, AIA

Every time a tree is milled into lumber and then hidden in a wall, it is treated with disrespect," says Jim Cutler, FAIA. The Bainbridge Island, Wash., architect has a deep respect for building materials, particularly wood. His recent designs reflect his emphasis on the moral and physical dimensions of building.

It was in Louis Kahn's design studio that Cutler discovered the implications of architectural anthropomorphism—the practice of giving lifelike attributes to building materials. "That's what Kahn was doing when he asked the brick what it wanted to be," he says.

Cutler began his own practice in 1977, hanging around the Bainbridge Island ferry terminal and introducing himself to potential clients. His first house won local honor awards, but he struggled for 10 years before his practice took off. Now, he juggles 14 employees with projects around the world.

A few key projects proved instrumental in shaping Cutler's approach to wood detailing and design. The first was a totem-pole carving center he designed in Alaska. There, he learned about the Native American remorse ritual, in which homage is paid to the animals killed for survival. "I decided to find ways to honor the trees that were cut," Cutler says. He gave form to this idea at the Bloedel Education Center on Bainbridge Island [February 1993, pages 92-97] by designing a project without any wood studs. Taking their place is a wood curtain wall in which every wood component is visible.

Microsoft billionaire Bill Gates' house, designed with Peter Bohlin, FAIA, of Bohlin Cywinski Jackson's Pittsburgh office, gave Cutler name recognition beyond the Northwest. Gates' private Xanadu on the suburban shores of Lake Washington includes a reception pavilion that seats 120, a trampoline room, and 20-car garage. The wood curtain-wall system developed at the Bloedel Center is used throughout the house. There is no drywall; every piece of wood and joinery is visible. During construction, the general contractor suggested that he and Cutler go into an old-growth forest to select trees for lumber. "It hit me that while I was fighting to save every tree on the property, I was chewing up more wood in my designs than most architects," Cutler says. The dilemma was solved by using 2.8 million board feet of lumber.

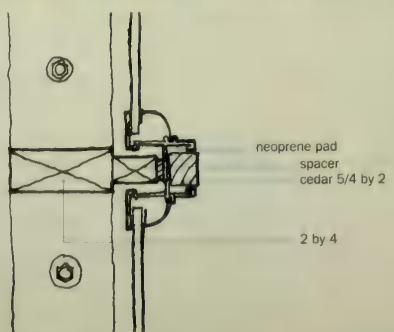
Post-Gates, Cutler looks for ways to achieve the thoughtful and expressive design of that spectacular house, but on a more modest budget, always conservative and respectful of the resources used. He moved from heavy-timber construction to light-wood framing with beams made from layers of wood. "The quality of larger sections of wood is suspect anyway," he says, "remilling salvage lumber is expensive, often 20 to 30 percent more than new wood." Also, instead of exposing every wood framing member, his new approach to detailing provides glimpses of the framing in key places. "Every wood stud gets its own little peep show," he says.

Cutler is no slave to sustainability, but he believes strongly in his intuitiveness. Architecture's strength and, Cutler says, his own lie in the ability to intimately connect people to a place. Detailing plays an essential role by heightening an awareness of materials and, by extension, the natural world. Three new houses demonstrate Cutler's evolving vocabulary. ■





Cutler begins the design process by learning the topography of the site. The Wood Residence reacts to the gently undulating land with a series of rectangular spaces that back up to the woods and face the meadow (top). The wood construction is revealed, often cleverly. The exterior cladding stops short of the sill, revealing the joint between frame and foundation (left), while rafters swoop straight into the eaves (right).



Detail 1: window frame

Left: The frames of the exterior single-glazed aluminum windows are separated from the studs with cedar spacers and neoprene pads.



WOOD RESIDENCE, VASHON ISLAND, WASH.

"I don't use the word 'site.' It turns land into an abstraction making it easier to devastate," Cutler says, striding through the gray-green grasses in this meadow near the sea, the setting for the 2,330-square-foot Wood Residence [January 1999, page 149]. Vashon is a rural island, though it is just a short ferry ride from Seattle. He begins each project this way, getting acquainted with the land and personally recording the location of every tree and change in grade.

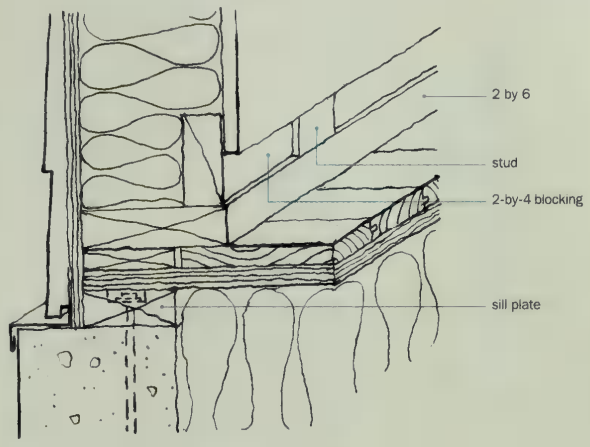
The house is a series of rectangles dancing along the edge of the meadow. To address the clients' conflicting requirements—the wife is an avid horsewoman and her husband is allergic to horses—Cutler developed a separate shower and laundry block that she passes through from the barn to the house.

Completed in 1997, the house is one of the first where Cutler modified the details of the Gates house for a relatively modest budget—$160 per square foot. Instead of exposing the wood framing, the wall-finish material stops 3 ½ inches above the floor revealing the bottom of the studs (detail 2). The juncture between ceiling and wall is also visible. This approach reduces the finish materials—whether drywall or tongue-and-groove pine—to skins that stretch sparely over the wood skeleton beneath.

In place of heavy-timber post-and-beam construction, flitch beams—triple-decker sandwiches made by alternating 2-by-8s with ½-inch wood spacers—span the living and dining area (detail 3). A T-shaped steel knife plate slipped into the ½-inch space and bolted in place ties the beams to the columns. It might have been easier to use engineered wood or trusses, but these materials lack the expressiveness Cutler strives to achieve.

Another detail, now standard in Cutler's vocabulary, developed during the design of the attached greenhouse. Concerned that condensation from the windows would harm the adjacent exposed wood framing, Cutler mounted standard aluminum window frames on the exterior face of the framing. Cedar spacers and neoprene pads hold the frames off the 2-by-4s so that condensation can drip away from the wood (detail 1). Cedar trim covers the joints between the jambs and at the edges of the windows.

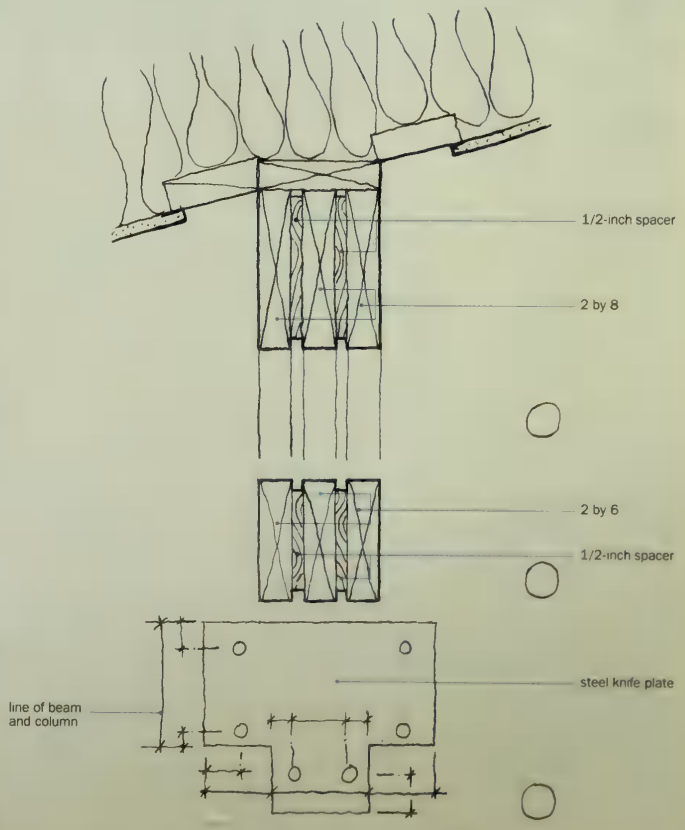
Cutler draws many details freehand on gridded vellum sheets. These are bound with the specifications to make hefty project manuals. Contractors see the phonebook-thick manuals and react "with fear," Cutler says. Not surprisingly, the architect prefers working with contractors who are indoctrinated into his routine; the general contractor on the Wood Residence, Pete Crocker, is now in Australia building his third Cutler house. *S. O.*



Detail 2: wall and foundation joint

Top: To highlight the wood structure, the wall-finish material stops 3 ½ inches shy of the finish flooring. Blocking hides the insulation behind.

Bottom: Flitch beams are made of 2-by-8s that alternate with ½-inch spacers. Steel knife plates (below) join the beam to the column.



Detail 3: flitch beam section and knife plate





Tall and slender like the surrounding pines, the cabin (left) features a window wall that showcases the studs (below). The exposed structure of the staircase helps form the guardrail (bottom right). Battens whimsically extend beyond the board siding (top right).

ARROWLEAF CABIN, WINTHROP, WASH.

Tall and laconic like the surrounding pines, this 1,350-square-foot cabin, completed last autumn, has a large gable roof that gives it an iconic form. A weekend retreat on a steep five-acre site, Arrowleaf Cabin is part of a vacation-home development in the bucolic Methow Valley, located near the snow-tipped Cascade mountains in north-central Washington.

The roof shelters a 16-foot-wide by 65-foot-long wood platform that hovers above the steeply sloped land. Balloon-framed walls, 18 feet high, run the length of the platform. These are clad, if scantily, with wood siding and fixed glazing punctuated with operable windows. Otherwise, the framing is visible, making it seem as if the trees got together and decided to make a house.

The design of the support structure beneath the platform, perhaps the most visible exterior detail, went through several iterations. "At one point, the whole thing looked like a centipede walking down the site," Cutler says.

Budget concerns reduced the supports to seven pairs of board-formed concrete piers. The narrow piers are battered on their short sides and braced back to the underside of the house with steel struts.

On top of each pier rests a pair of built-up wood columns connected by a ¼-inch galvanized-steel plate for lateral stability. The double-prongs of the column's welded-steel plate connector meshes with triple 2-by-8s (detail 4). Eight ½-inch galvanized through-bolts, penetrating the plate, the sill plate, and the footing, tie the assembly together.

Like the greenhouse glazing at the Wood Residence, the cabin's prefabricated wood windows are applied to the exterior face of the framing. Where the windows are operable, the jambs fall along the 24-inches-on-center dimension of the framing. Horizontal mullions on top of the blocking are required to prevent the continuously framed studs from buckling.

To enclose the short north and south ends of the cabin, the window wall turns the corner between the studs (detail 5), a construction technique that underscores the continuity of the exposed framing that runs the length of the platform. Cedar trim is used along the outside corner to finish the vertical seam between windows. On the inside, the seam is trimmed out with fir.

The staircase features an exposed 2-by-8 stud wall that serves multiple purposes on its way from the first floor to the second (detail 6). Along the main run of the stair and the second-floor landing, the exposed studs support the stair stringers and the round maple handrail. At the second floor, the studs continue above a maple handrail, while steel cable, threaded through the 2-by-8s, forms the guardrail.

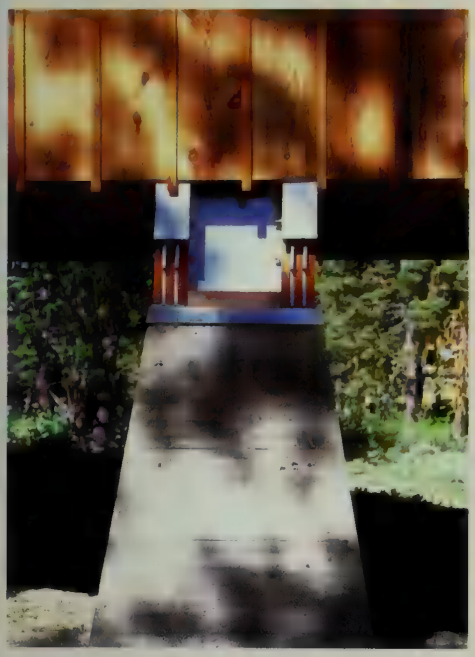
On the exterior, the battens extend several inches below the bottom edge of the rough-sawn board-and-batten cedar siding, preventing the clad portion of the cabin from feeling like a solid box. This light touch continues overhead where the rafters stop two feet short of the edge of the corrugated metal roof. Smaller 2-by-4 extensions nailed to one side of each rafter continue outward to support the roof while, at the same time, expressing the lightened load.

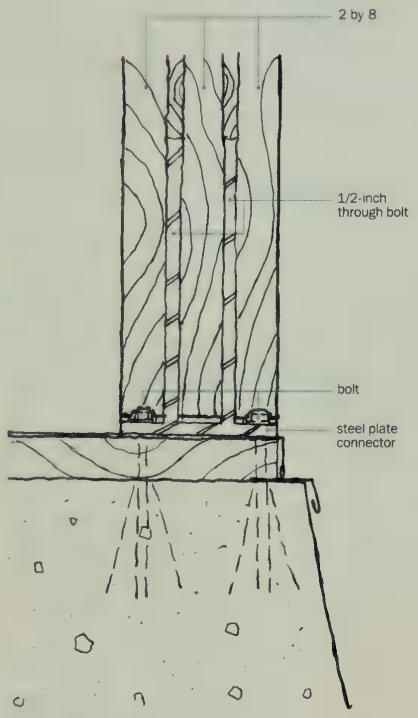
The cabin is small but, at $200 per square foot, not inexpensive. "It still requires the same level of detail as the other houses," Cutler says. *S. O.*

Top left: The cabin's triple 2-by-12 columns are tied to the foundation with a steel plate connector and eight through-bolts.

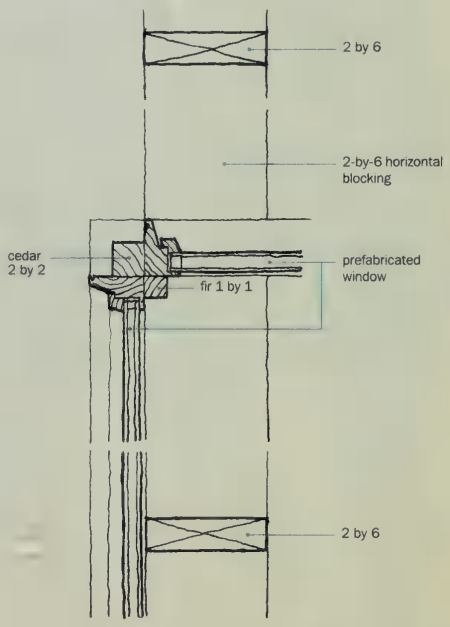
Top right: The window wall turns the corner between studs. Joints are trimmed with cedar on the exterior and with fir inside.

Bottom: Steel cable, threaded through 2-by-8 studs is used for the guardrails. The studs also support the stringers.



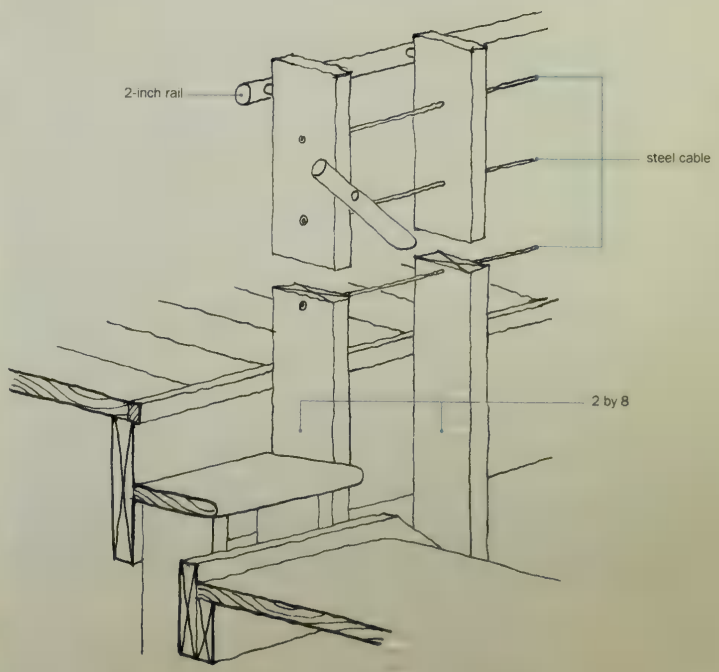


Detail 4: foundation section



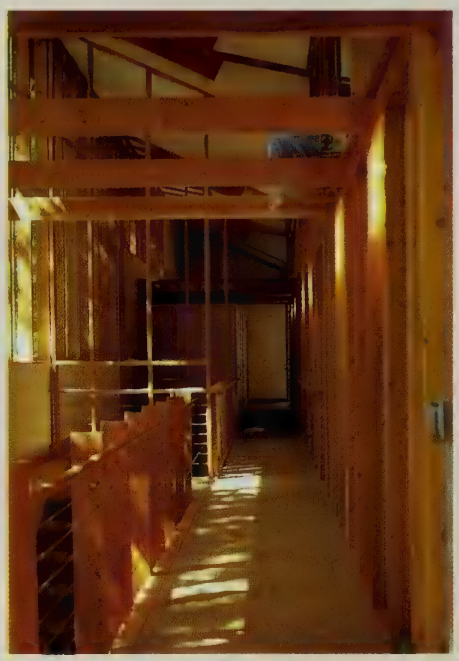
Detail 5: window wall corner





Detail 6: stair





The exterior of Tanglefoot peeks out from behind the pines (far left). Drywall is, for the most part, nonexistent in the house, so the wood framing was sanded and lacquered to highlight its color and grain (left).

TANGLEFOOT, PRIEST LAKE, IDAHO

The owners rely on their small fleet of amphibious planes to get to this remote, 6,000-square-foot house-on-a-lake. Built for an inventor (who developed the birthing beds now used in most maternity wards), his wife, and their four young children, the house also serves as a small conference facility for their business.

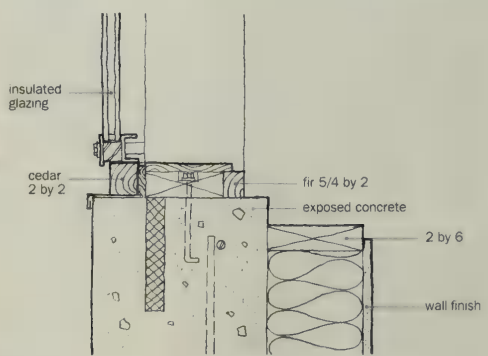
Cutler attributes the expressiveness of the project to his highly collaborative and creative relationship with the clients. "They listened to my ideas, then pushed me further," he says. As has become his practice, Cutler turned the standard design-then-details method inside out by determining seminal details early on before the scale of the plans and elevations increased from ⅛ inch to ¼ inch. This set the relative position of building elements and helped define the overall concept.

"The house is supposed to look as if it were built on an abandoned concrete building," says general contractor Randy Humble of Humble Homes Construction, Moscow, Idaho. To make the new poured-in-place concrete walls appear weathered, the formwork was lined with salvaged boards.

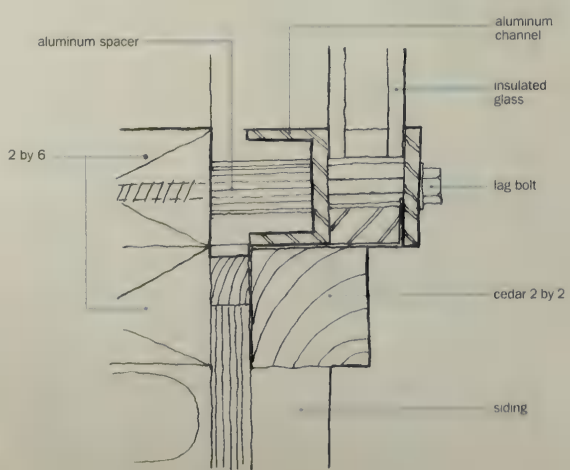
The concrete walls were poured a ½ inch higher than needed and ground down to form a clean edge for the sill plate (detail 7). Cutler exposed the concrete ledge inside the house by stopping the walls 1 ½ inches short of the top of the foundation wall.

To slip the house in among the trees, it was broken into separate summer and winter blocks connected by a double-height 750-square-foot greenhouse, which becomes a living space during mosquito season. During cold months, the summer block—with a master suite above and a conference room below—is closed, reducing the area needing heat. The balance of the living space, including the living room, kitchen, and children's bedrooms, is in the winter block.

Again, Cutler used flitch beams, alternating wood studs with galvanized-steel plates. To accommodate Idaho's 100-pounds-per-square-foot snow loads, the plates dip below the bottom of the beams (detail 10). Cutler, who worked as an auto mechanic while in college, galvanized freeze plugs found on engine blocks and used them as



Detail 7: wall section



Detail 8: window section

Left: To reinforce the impression that the house sits atop an abandoned building, the concrete is exposed at the base of the walls inside the house.

Bottom: Where the glass is inoperable, aluminum bars clamp the panels against the metal channels with lag bolts.



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covers for the bolt ends.

The window detailing is more refined than that of the other two houses. Aluminum spacers float a frame of aluminum channels off the face of the wood studs (detail 9). Where the windows are inoperable, an aluminum bar clamps the insulated glass panels against the aluminum channels with stainless-steel lag bolts (detail 8).

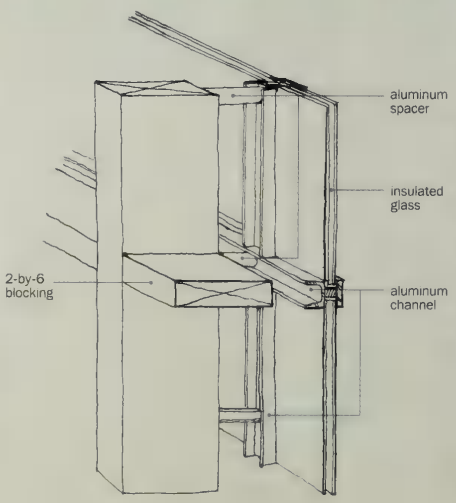
At operable sections, prefabricated aluminum windows sit within the aluminum channel frame. The tight tolerances and unusual configurations made flashing difficult until rolls of flexible, thin, and durable aluminum tape, used in the aerospace industry, were hunted down by the client. A cedar 2-by-2, set back from the face of the aluminum, finishes the outside edge of the frame.

Drywall serves many purposes in standard construction, so when it is eliminated, the elements it disguises must be rethought. "Rarely was anything commercially available that was in harmony with the design," the client says.

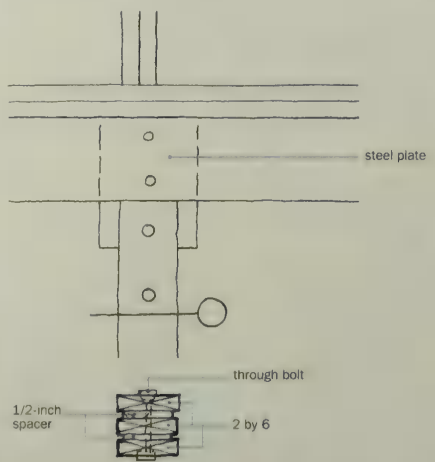
For example, industrial explosion-proof switches replace standard electrical switches, while cast-aluminum junction boxes and galvanized-steel conduit are substituted for standard electrical outlets.

Because much of it is visible, the framing is select structural lumber to cut down on the amount of chipped edges. The client began working with a local mill to pull and stockpile the best pieces a year before construction started. "I've never sanded and lacquered wall studs before," remarks Humble. Three 40-by-60-foot tarps protected the framing from the elements until the roof was in place.

Achieving this level and consistency of design required a 2-inch stack of Cutler's hand-drawn details. It also required a shift in thinking on the part of both the contractor and the architect. The house, the architect says, "raises construction, particularly framing, from a trade to a craft." This is a house that tells the story of how it was made and celebrates not only the occupants, but also the people who made it. *S. O.*



Detail 9: window



Detail 10: flitch beam

The unusual window details, which include aluminum channels and bars that hold the glass away from the wood (far left), are one of the architect's hallmarks. Cutler used galvanized automotive parts to cover the bolt ends on his flitch beams (above).

Left: Aluminum channels and spacers hold the insulated glass away from the frame.

Bottom: A built-up beam made of alternating layers of wood and steel supports snow loads. For greater strength, the steel runs beyond the ends of the beams to the framing.

Credits

Project: *Wood Residence, Vashon Island, Wash.*
Project team: *Jim Cutler, FAIA, David Cinamon, AIA, Mark Wettstone, George Houdek*
Consultants: *Verdi[illegible] Landscape Architects*

Project: *Arrowleaf [illegible] Winthrop, Wash.*
Project team: *Jim Cutler, FAIA, Russell Hamlett, David Cinamon, AIA, Joe Hurley, Bruce Anderson, AIA*
Engineers: *Monte Clarke Engineering*
Contractor: *Bjornsen Construction*

Project: *Tanglefoot, Priest Lake, Idaho*
Project team: *Jim Cutler, FAIA, David Wagner*
Engineers: *Coffman Engineers (structural)*



Dare To Dream...

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CIRCLE 60 ON INQUIRY CARD

Residential Products

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◄ Laminate by nature

Armstrong introduces a residential laminate-flooring line, which debuts with two new collections of authentic wood designs. The designs blend plank styles, natural colors and lusters, and grain varieties to look realistic. 888/ARMSTRONG. Armstrong World Industries Inc., Lancaster, Pa. **CIRCLE 202**

▼ The heart of the home

Kitchens of today are the single most visited room in a house. With the addition of a see-through fireplace, the kitchen can connect to another room in the home, such as a living or dining room. The multiview B-vent gas fireplace series (shown) vents vertically through the roof and features a new log configuration and burner system. The logs are carefully crafted to look like natural logs. The series is available in peninsula, see-through, and corner styles to suit any decorative taste. 800/731-8101. Superior Fireplace Company, Fullerton, Calif. **CIRCLE 201**



▼ European panorama

The new Gaggenau series of 27-inch stainless-steel-behind-glass built-in ovens feature a panoramic front, no dirt traps, and a door handle that can be hinged on the left or right to swing open 180 degrees. Surrounding cabinets are protected against overheating by the low-noise cooling system. 800/828-9165. Gaggenau, Huntington Beach, Calif. **CIRCLE 203**



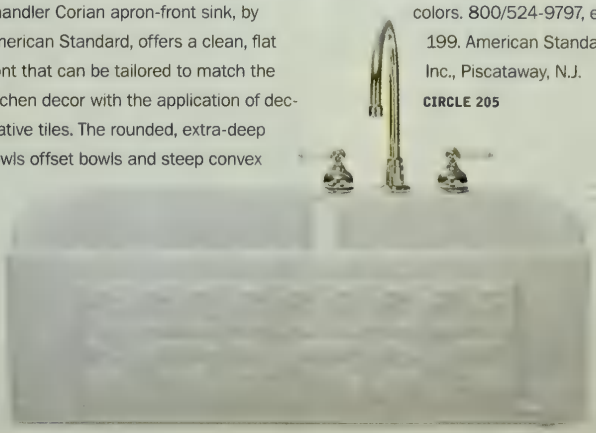


◄ ADA-compliant faucet

Designed primarily for commercial retrofit applications, the wall-mount, two handle kitchen faucet is poised to meet the resurgence of large kitchen sinks in new residential applications. Both handle styles are ADA compliant. 847/675-6570, ext. 359. Gerber Plumbing Fixtures Corp., Lincolnwood, Ill. **CIRCLE 204**

▼ Don't cut those apron strings

The front apron panel of the new Chandler Corian apron-front sink, by American Standard, offers a clean, flat front that can be tailored to match the kitchen decor with the application of decorative tiles. The rounded, extra-deep bowls offset bowls and steep convex sides make room for large pots and pans. It is offered in a range of Corian colors. 800/524-9797, ext. 199. American Standard Inc., Piscataway, N.J. **CIRCLE 205**





▲ Metal detailing

Questech metal tiles can turn backsplashes or fireplace surrounds into focal points or highlight a wall or floor border. Installed just like ceramic tile, the tiles are manufactured using a blend of premium metals, such as copper, nickel-silver, brass, and bronze, but weigh only 20 percent as much. They can be used as an alternative to many decorative materials, including marble, granite, plaster, ceramic tile, and wood paneling. The metals have a protective clear coat. 931/484-2110. Crossville Ceramics Company, Crossville, Tenn. **CIRCLE 206**

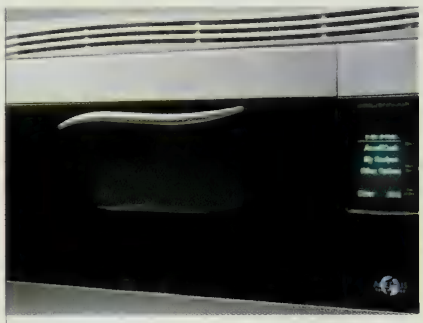
▼ Short-order cook

The Jenn-Air Accellis 5XP wall oven has a compact configuration that provides a number of installation options. It can be installed above the counter or below, paired with a cooktop or another wall oven, or even installed in nontraditional locations like a dining room. The oven's rapid-cook technology lets the user cook up to five times faster than a conventional oven. 800/499-0116. Jenn-Air, Newton, Iowa. **CIRCLE 208**



▼ Pot fills and nothing spills

Inspired by professional kitchens, the pot-filler faucet complements the commercial-styled appliances popular in many of today's domestic kitchens. The pot-filler extends to reach front burners, bends to reach back burners, and folds against the wall when not in use. It is available in chrome (shown) or satin nickel. 215/822-6590. Franke Consumer Products Inc., Kitchen Systems Division, Hatfield, Pa. **CIRCLE 207**





▲ New finish and door styles

KraftMaid offers four new cabinetry finishes and seven new cabinetry door styles. KraftMaid's buttercream finish features a pale-yellow semitransparent stain with deep-toned "fly spec" highlights. This creamy yellow finish combines with KraftMaid's new decorative grape onlays and ornaments in an indigo finish (shown). Buttercream is available on KraftMaid's maple and birch cabinetry. 440/632-5333. KraftMaid Cabinetry Inc., Middlefield, Ohio. **CIRCLE 210**

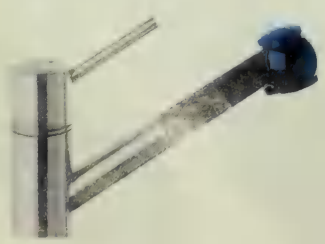


► Exhausting results

Depending on the model in the Allure Series of range hoods, Broan-NuTone uses either a patented axial blade or specially designed centrifugal wheel for exhausting air. Both are designed to be more efficient than other hoods, resulting in reduced revolutions and quieter operation. 800/558-1711. Broan-NuTone, Hartford, Wis. **CIRCLE 209**

▼ Clear-headed faucet

The Suprimo kitchen faucet collection features a stainless-steel body and translucent sprayheads in three colors: green, blue, and gray. The sprayheads' Turn and Lock technology allows spray settings to be locked in place and easily changed with the push of a button. Suprimo also features an aerator screen for easy cleaning and maintenance. 770/248-1600. KWC Faucets Inc., Norcross, Ga. **CIRCLE 211**





▲ The butler did it, again

The Hudson Valley Collection was inspired by the craftsmanship of butler's pantries found in the great homes of the late 19th and early 20th centuries. The collection features beaded inset doors, beveled or fluted glass, and historically accurate reproduction hardware in stainless steel or chrome. It comes in 10 finishes. 800/765-5266. SieMatic Corporation, Bensalem, Pa. **CIRCLE 212**

▼ Finish for high-traffic areas

Bruce Hardwood Floors introduces Dura-Luster Plus urethane finish, an aluminum-oxide finish that provides up to 10 times more abrasion resistance than traditional urethane finishes, according to company plant tests. Previously offered only on the Natural Reflections, Harborlight Plank, and Northshore Plank, Dura-Luster Plus will now be available on all Bruce plank and strip floors. The aluminum-oxide wear-layer forms a crystal-clear, consistent finish that never needs waxing and requires only minimal care. 800/722-4647. Bruce Hardwood Floors, Mount Olive, N.J. **CIRCLE 213**



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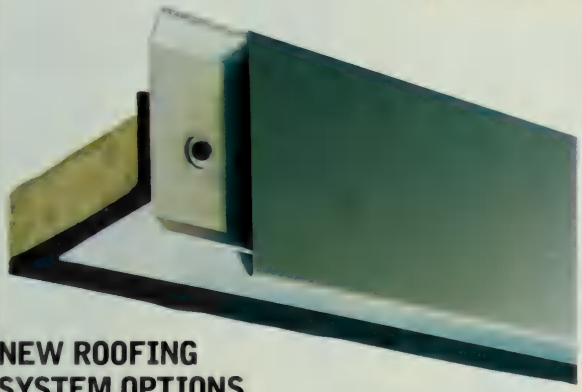
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CIRCLE 62 ON INQUIRY CARD

New Products

Picking the right roofing system is about using common sense, explains James R. Kirby, AIA, director, technical services, National Roofing Contractors Association. He suggests that architects stick with companies with a proven track record. Local knowledge provided by roofing contractors can also give architects an advantage, he adds. *Rita F. Catinella*



NEW ROOFING SYSTEM OPTIONS

The Johns Manville Roofing Systems Group has introduced the Presto-Tite Fascia System to provide maximum protection against wind-uplift damage (top right). Presto-Tite is a two-part fascia system with an extruded aluminum anchor bar and a snap-on fascia cover.

Presto-Tite is available in three versions: a built-up and modified version, single-ply adhered and mechanically fastened version, and single-ply stone ballasted version. The system is included in all JM Roofing System guarantees, is FM



1-90 approved, and meets ANSI/SPRI-1-98 wind standards. It has a 20-year warranty, and no stripping in is required.

DuraBoard (bottom left), which is available in ½-inch, ¾-inch, and 1-inch thicknesses, is one of the newest additions to the JM line of insulations for built-up and modified bitumen roofs. It is impact resistant, has high wind-uplift ratings, and is heat weldable for SBS and APP membranes. DuraBoard is less expensive and easier to install in these applications because of its ability to be directly heat welded without an additional base sheet. With its weight-bearing strength and rigidity, the 1-inch DuraBoard can span the wider rib openings of metal roof decks. It also has the advantage of a minimum recycled content of 25 percent.

In addition, the company has recently introduced the OmniDiamond standard precut crickets and the DynaWeld Base. The crickets are designed to enhance drainage on a tapered roof system, to allow for on-site adjustments for drain locations, and to be helpful on new construction projects when actual drain location can change. The DynaWeld Base was designed for use as a premium, modified bitumen ply or base sheet. It can be heat welded as is particularly suitable for tight or awkward roof areas. DynaWeld's elastomeric asphalt blend is formulated to provide the physical properties for ease of installation and long-term roof performance. 800/654-3103. Johns Manville Roofing Systems, Denver.

CIRCLE 215

POLYISO INSULATION WELL AHEAD OF EPA REQUIREMENTS



Atlas Roofing is the first company to develop and introduce a new generation of environmentally friendly HCFC-free polyiso insulation products, known as ACUltra Technology. The company is working ahead of the EPA requirement to end the use of HCFCs by the year 2003 through the development of proprietary and patented hydrocarbon blowing formulation for foam insulation. Back in 1992, Atlas was the first manufacturer to convert from CFCs to less-harmful HCFCs.

The polyiso industry as a whole has been making efforts to develop products that are as harmless to the environment as possible.

"I'm sure every other [polyiso] company is doing work that will allow them to make a similar announcement within the next few years," says Jared O. Blum, president of the Polyisocyanurate Insulation Manufacturers Association (PIMA), of which Atlas is a member.

PIMA was awarded the 1999 U.S. EPA's Climate Protection Award last August. The organization was one of 10 individuals and organizations internationally to receive the honor in recognition of "exemplary efforts and achievements in protecting the global climate." In addition, Atlas was awarded the EPA's coveted 1998 Stratospheric Ozone Protection Award. Other initiatives by Atlas include the R-value warranty on polyiso products for roof insulation and the first 20-year warranty on R-value retention. The primary facers for many Atlas roof insulation products are made from predominately recycled materials.

"We strive at once to be the low-cost and high-quality manufacturer of products that are as energy-efficient as they are environmentally responsible," says Atlas president Ron Fredin.

ACUltra Technology is available in all Atlas polyiso foam insulation roofing and sheathing products, including tapered ACFoam and ACFoam composite products, Nail Base and Vented-R insulation for roof decks, and Atlas' exclusive Gemini precut roofing crickets. The technology offers improved dimensional stability, improved facer adhesion, and continued R-Values and code compliances for flame spread/smoke development. 770/952-1442. Atlas Roofing Corporation, Atlanta.

CIRCLE 214





◄ Chrome dome

Owens Corning introduces two additions to its MiraVista specialty roofing family, MiraVista Copper and MiraVista Designer Metal. Fashioned from 16-ounce solid copper, MiraVista Copper is less costly than traditional copper roofing, maintenance free, and backed by a 50-year warranty. MiraVista Designer Metal roofing offers metal panels in 30 colors and is backed by a 30-year warranty. 800/GET-PINK. Owens Corning, Toledo. **CIRCLE 216**



▲ All-weather flashing sealant

One of the additions to the line of Polyseamseal products is a new all-weather roof and flashing sealant that can be applied at temperatures ranging from 20 to 90 degrees Fahrenheit without difficulty in extrusion. 800/321-3578. OSI Sealants Inc., Mentor, Ohio. **CIRCLE 217**



◄ Fully adhered system

FleeceBACK membrane consists of a nonwoven fleece backing laminated to Carlisle SynTec's patented EPDM membrane and provides 100 to 115 mils of consistent thickness for various roofing substrates, resulting in flexibility, durability, and weatherability. The membrane is adhered with VOC-free adhesive. 800/4-SYNTEC. Carlisle SynTec Inc., Carlisle, Pa. **CIRCLE 218**

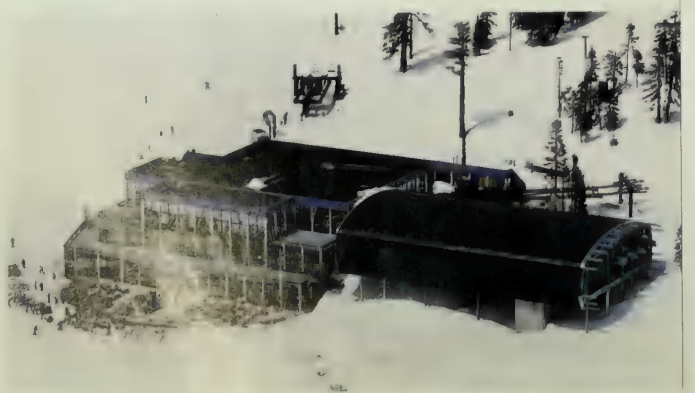


◄ Southern exposure

Savannah is a heavy-weight strip residential shingle with the look of an architectural laminated shingle. The Speed Lap alignment system features a notched side lap that makes it simple for roofing installers to determine where the shingles should be aligned, both horizontally and vertically. 800/839-2588. Georgia Pacific Corp., Atlanta. **CIRCLE 219**

▼ Hitting the slopes

The designers of the Squaw Valley Ski Resort needed compatible solutions capable of both low-slope and high-slope curved metal panel applications to withstand severe weather conditions. Garland suggested they seal the low-slope area with the R-Mer Lite insulated steel roofing system and use the R-Mer Span standing-seam system for the curved terminal. 800/321-9336. The Garland Co. Inc., Cleveland. **CIRCLE 220**





▲ Polymers keep roofs cool

New Kraton polymers help extend the life expectancy of roofs exposed to high temperatures and improve their overall performance, without sacrificing the low-temperature performance associated with SBS polymers. The flexibility of the SBS-modified roofing membranes are highlighted in this new building at Sheffield University in the U.K. 800/457-2866. Shell Chemical Co., P.O. Box 2463, Houston. **CIRCLE 221**

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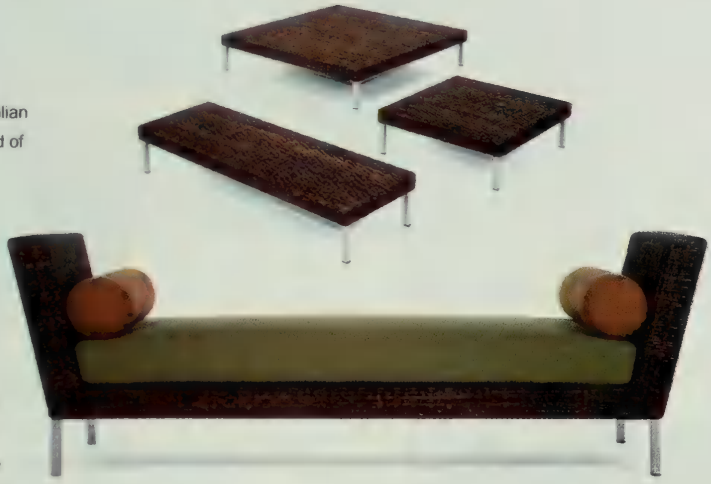
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CIRCLE 64 ON INQUIRY CARD

Product Briefs

► No smoking, please

The Helva Collection, designed by Italian architect Paola Navone, is composed of woven Manila hemp, a natural vegetable fiber prevalent in the Far East and commonly used in rope. Although it's not a familiar medium for furniture construction in the West, its durability makes it appropriate for this use. The hemp, handwoven to create an intricate pattern, is crafted around a wooden and rattan frame on chrome-plated glazed steel legs. 415/626-6730. The Wicker Works, San Francisco. **CIRCLE 222**



▼ Sculptured grille blocks

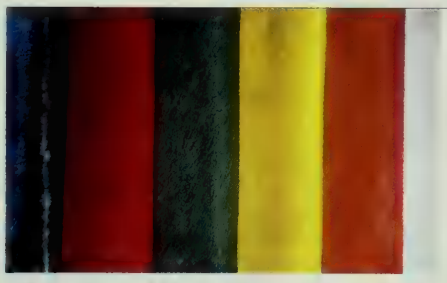
Depending on how it is assembled, a new sculptured glass-fiber-reinforced concrete block (GFRB) grille can create a circular or herringbone pattern. Although visibility is limited to 5 percent through the grille, 22 percent of air can pass through. 941/925-3331. The Grille Block LLC, Sarasota, Fla. **CIRCLE 223**





▲ Signs of expansion

The expanded ASI Infinity Series adds an assortment of new standard components to the signage system, including precision-crafted aluminum text, graphic- and ADA-ready panels, ASI updatable modules, and a choice of new mounting fixtures. In addition to the current wall-mounting options, ASI Infinity now offers suspended, projecting, freestanding, and tabletop options among the standard available fixtures. 214/352-9140. ASI Sign Systems Inc., Dallas. **CIRCLE 225**



▲ Colorful cowhide

Twenty years ago, Edelman Leather started making leather specifically for architects and interior designers of aircraft, contract, and residential interiors. The line consists of 450 colorways and 25 different types of leather. The leather ranges from aniline-dyed cowhides to vegetable-tanned artisan leather. The Fur Fun collection of cowhide with fur (shown) is available in 11 bright, solid colors for use on walls, chairs, or pillows. 203/426-3611. Teddy & Arthur Edelman, Hawleyville, Conn. **CIRCLE 224**

▼ Substrate for nontiled areas

Dens-Shield Tile Backer is an ideal substrate when interior walls and ceilings of swimming pools, natatoriums, laboratories, and other areas need protection from high moisture. The same properties that have made it a substrate for interior tile installations are equally appropriate for nontiled areas. 800/BUILD-GP. Georgia-Pacific, Atlanta. **CIRCLE 227**



◄ The road to Kathmandu

As part of her exploration into the art of rug making, Melisca Klisanin has traveled to Kathmandu to work with rug weavers, to Egypt to create hand-knotted silk pieces for private collectors, and to Amish country to work on natural and dyed raw-silk rugs. Shown here are Rings in a Pond and Spinning Daisy, hand-tufted silk and wool blends in 6-foot diameters. 212/358-8720. Klisanin Ross Gallery, New York City. **CIRCLE 226**



Product Briefs



◄ Bridging steel and glass

Kipp Stewart has designed a series of steel and glass indoor tables for residential or commercial applications. The Golden Gate Collection includes console, cocktail, and side tables that feature long sweeping arcs contained in simple rectangular structures. The Column Series includes round and rectangular dining tables, as well as cocktail tables with dense vertical columns bound together with weightless horizontal elements. 510/835-1365. Bradford Stewart Furniture, Oakland.

CIRCLE 228



▲ Tough tapestry

The Tapis Collection, designed by Sally Sirkin Lewis, consists of seven tapestries translated through 37 new textiles in colorways that include lemon peel, solid ebony, persimmon, and a warm neutral flax. Three of the new Tapis patterns are made with a looped weave that conveys a feeling of a subtly textured antique document with a modern-day pattern and color. The other four designs use variations of an Ottoman weave that creates a background-ribbed effect. Tapis meets heavy-duty upholstery standards, thanks to its detailed weaving process. 310/680-4300. J. Robert Scott Inc., Inglewood, Calif. **CIRCLE 230**

► Cedar home construction

International Homes of Cedar (IHC) manufactures precut homes on a custom basis. IHC uses the massive strength of solid horizontal log structures with kiln-dried laminated-cedar timbers and modern precision-machined interlocking joints. 800/767-7674. International Homes of Cedar Inc. Woodinville, Wash.

CIRCLE 229



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Product Briefs

▼ Another renaissance

Philippe de Saga (PDS) has acquired exclusive rights to Europe's largest digital private art archive, Scala, which contains more than 100,000 images primarily from Italian art history (including the Vatican Museum's collection). PDS technology allows any digitized image to be transferred to almost any material, including fabric, metal, glass, and marble. Images or portions of images can be manipulated by size and scale, and after transfer, a variety of techniques can be applied such as surfacing, etching, and sculpting to accurately recreate originals. Despite the attention to detail required, this process costs substantially less and takes far less time than hiring painters, fabric artists, and the like. PDS helped recreate masters like Titian, Veronese, and Tiepolo on the walls and ceilings of The Venetian casino in Las Vegas. 416/964-7105. Philippe de Saga, Toronto, Ontario. **CIRCLE 231**



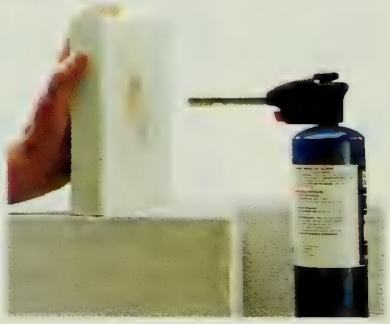


◄ Classic tile shape

The Fifth Avenue Collection of glazed 3-by-6-inch ceramic wall tiles comes in 5 stocked colors and 17 custom colors. The collection's design is inspired by 3-by-six wall tiles that date back to the late 1800s and early 1900s. 330/866-5531. United States Ceramic Tile Company, East Sparta, Ohio. **CIRCLE 233**

► Aerated concrete under fire

ACCO autoclaved aerated concrete is noncombustible, emits no toxic fumes when exposed to fire, and has a fire-resistance rating of 1 inch per hour. ACCO AAC can be used as a cladding to protect other materials, such as steel, or to increase the fire rating of concrete walls. 888/901-ACCO. ACCO Aerated Concrete Systems Inc., Apopka, Fla. **CIRCLE 232**



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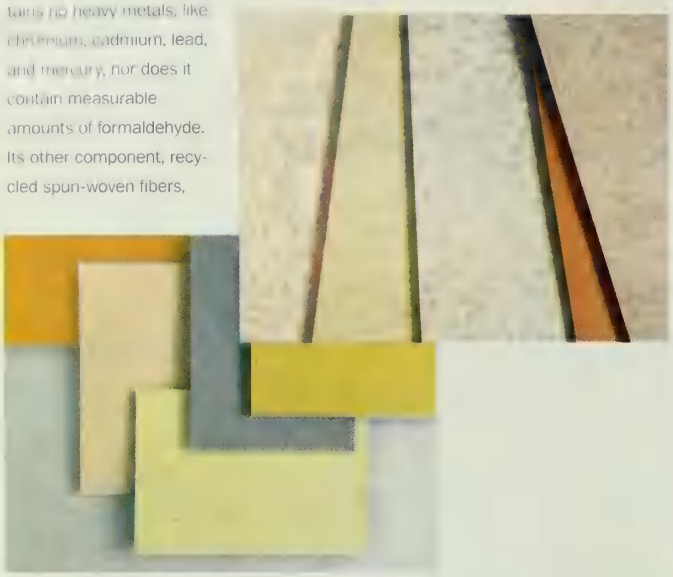
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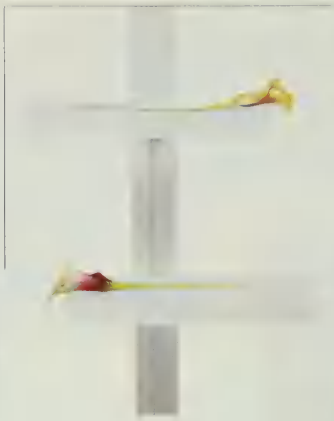
CIRCLE 68 ON INQUIRY CARD

Product Briefs

▼ Allegory of nature

Allegory is a new eco-sensitive, Type II wallcovering composed of 50 percent wood fiber and water-soluble inks. It contains no heavy metals, like chromium, cadmium, lead, and mercury, nor does it contain measurable amounts of formaldehyde. Its other component, recycled spun-woven fibers, enhances the sparkling finish. Allegory is available in two coordinating patterns, Allegory Rush and Allegory Fern, and comes in a palette with names such as Bayou, Sunshine, and Glacier. 212/807-6300. Innovations In Wallcoverings Inc., New York City. **CIRCLE 234**





▼ Cladding for a rainy day

Rheinzink has expanded its product line to include a building-envelope system. Rheinzink System-A panels provide the first layer of defense against precipitation by blocking rain and snow with a metal cladding screen. The entire exterior skin of Vancouver's Coal Harbour Towers uses the rain-screen principle. 604/291-8171. Rheinzink Canada Ltd., Burnaby, British Columbia. **CIRCLE 236**

▲ Show off your stuff

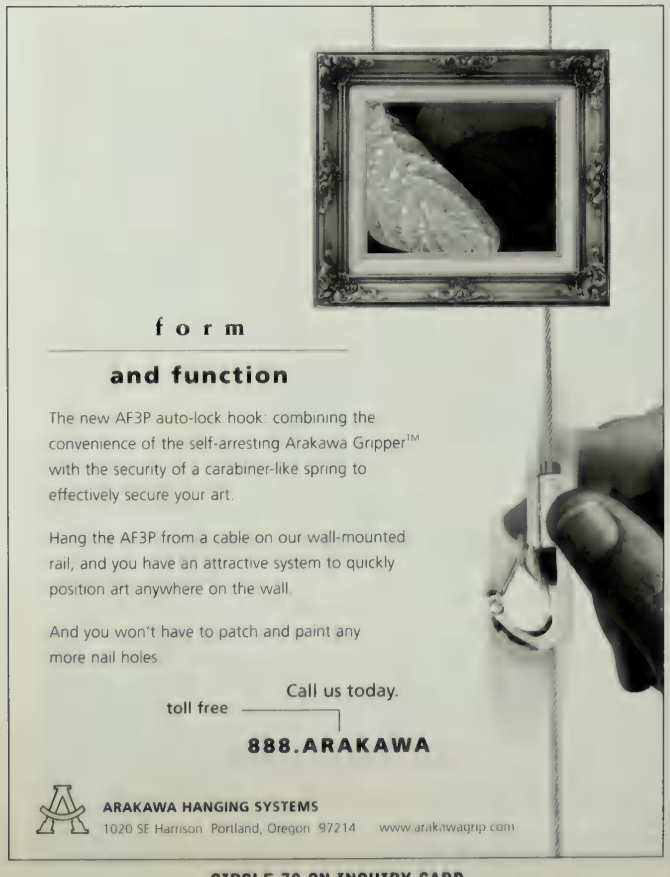
The Reed display system, whose anodized-aluminum, tension-based verticals are even slimmer than those of the ALU Autopole system that inspired it, has a diverse range of attachable accessories in sandblasted and white acrylic. Reed is an appropriate choice for merchandising apparel, footwear, jewelry, eyewear, fragrances, and cosmetics. 212/924-8713. ALU, New York City. **CIRCLE 235**



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CIRCLE 69 ON INQUIRY CARD



CIRCLE 70 ON INQUIRY CARD

Product Briefs



◄ Ringing in the new

Nevamar's Year 2000 high-pressure laminate collection features 33 items, including a variety of new solids, patterns, and woodgrains. Two new patterns are reminiscent of metal, yet offer the functionality of high-pressure laminates. MetalX (shown) conveys the image of finely brushed metal and is offered in three colorways: copperwire, stainless, and bronzed. 800/526-9469. International Paper, Decorative Products Division, Odenton, Md.

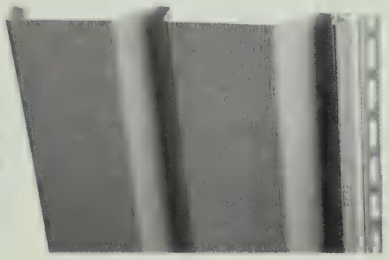
CIRCLE 237



► Embossed vinyl siding

Sovereign Select vinyl siding features a .046-inch wall thickness with a full-roll nailing hem and patented Advantage Lock system. Embossed with a rich, cedar-grain texture, the panel is available in 11 core colors and 4 designer shades. 216/514-3500. Revere Building Products, Cleveland.

CIRCLE 238



▲ Urethane millwork additions

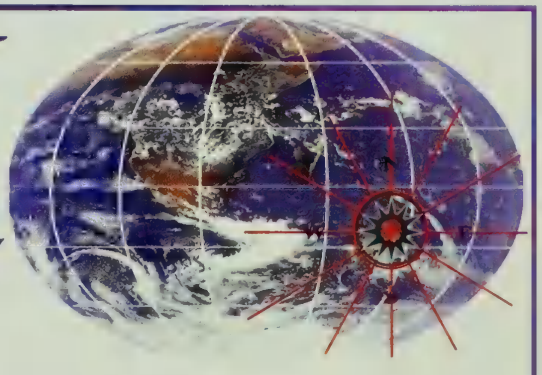
Two new styles, a triangle louver (stretching 10 feet long) and an eyebrow louver in three sizes, have been added to the company's urethane louver product line. Existing louver products in round, cathedral, peaked, and other styles are now offered in 14 new sizes. Available in both a stainable version with a natural redwood texture and color (in a limited number of styles) and in a smooth, white finish with a UV-protective topcoat finish, Architectural Accents louvers also come with optional siding rout. 800/446-3040. Style-Mark Inc., Archbold, Ohio.

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Product Literature

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Vetter's online launch **www.vetterwindows.com**

Clopay Building Products' new application and design manual **www.clopaycommercial.com**

NetCompliance launches a new MSDS site **www.msdscompliance.com**

Cypress construction guide

Versatile, Distinctive Cypress is a free, 12-page technical guide for building and design professionals working with cypress. 412/829-0770. Southern Cypress Manufacturers Association, Pittsburgh. **CIRCLE 240**

Wood structure design manual

The new *ASD Manual* brings together all required elements for allowable stress design of wood structures in one comprehensive package. It features over 1,000 pages of design and construction information, including the building-code-recognized National Design Specification for Wood Construction. 504/443-4464. Southern Forest Products Association, Kenner, La. **CIRCLE 241**

Educational lighting CD-ROM

Retail Lighting is the second CD-ROM produced in conjunction with Lightpoint, Osram Sylvania's lighting education center. 800/LIGHTBULB. Osram Sylvania, Danvers, Mass. **CIRCLE 242**

Stone solutions

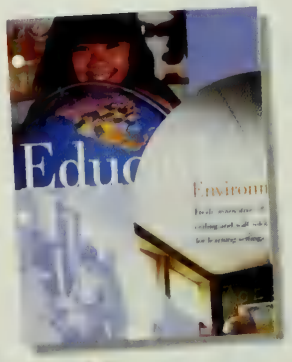
The 84-page *Cultured Stone Design Solutions* addresses a range of building needs and solutions with cultured stone products. 800/255-1727. Cultured Stone Corporation, Napa, Calif. **CIRCLE 243**

School construction brochure

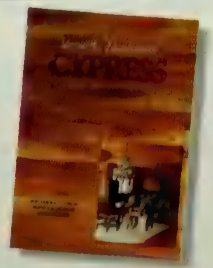
The *Education Environments* brochure provides designers detailed information on a range of wall and ceiling products and systems suited for educational construction. 800/950-3839. USG Corporation, Chicago. **CIRCLE 244**

Laminate catalogue

The *Year 2000 Catalog* features Nevamar's largest-ever collection of newly introduced high-pressure laminates. 800/526-9469. International Paper, Decorative Products Division, Odenton, Md. **CIRCLE 245**









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Product Literature

Cedar shingle site/CD-ROM

Cedar Valley's *Design File* is now available on CD-ROM and on the Web at www.cedar-valley.com. *File* includes application photos, shingle panel options, corner systems, and custom products. 800/521-9523. Cedar Valley Shingle Systems Inc., Hollister, Calif. **CIRCLE 246**

Window/door selection guide

EFCO's 480-page *Architectural Guide* binder contains information on how to make preliminary window, door, curtainwall, and storefront selections. 800/221-4169. EFCO Corporation, Monett, Mo. **CIRCLE 247**

Testing directory

A new directory from ITS contains a listing of fire doors, frames, and hardware that have been tested, certified, and issued the industry-recognized Warnock Hersey Mark for positive pressure standards compliance. 800/967-5352. Intertek Testing Services NA Inc., Boxborough, Mass. **CIRCLE 248**

Window case study

A new brochure from Weather Shield showcases the use of the company's windows in the newly opened Ten Mile Station restaurant in Colorado. 715/748-2100. Weather Shield Windows & Doors, Medford, Wis. **CIRCLE 249**

Book of TPO knowledge

The TPO Book of Knowledge includes information about the manufacture, history, and benefits of TPO roofing products. 877/TPO-ROOF. Stevens Roofing Systems, a division of JPS Elastomerics Corp, Holyoke, Mass. **CIRCLE 250**

Resilient flooring guide

The *Interlock Tile Color Selection Guide* was designed to aid architects, designers, and facility owners in selecting the proper resilient flooring for commercial, institutional, and industrial applications. 800/431-3456. Pawling Corporation, Wassaic, N.Y. **CIRCLE 251**

Fire testing brochure

A new *Fire Facts* brochure from Trus Joist MacMillan discusses the thorough fire testing of their products. 800/628-3997. Trus Joist MacMillan, Boise. **CIRCLE 252**



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BIG IDEAS LANDSCAPE ARCHITECTURE

continued from page 64

Not everyone, however, thinks this partnering can happen smoothly. According to Bill Callaway, president of SWA, a Sausalito, Calif.-based landscape architecture firm, the state of collaboration between architecture and landscape architecture is worse than it has ever been. He gives a couple of reasons, including the development of a hero-architect paradigm that encourages big-name architects to believe they can complete a project entirely on their own. But the main reason for poor collaboration, says Callaway, is a lack of cross education between disciplines. Landscape architects learn nothing in school about architecture, and architects learn nothing about landscape. The problem has obvious technical ramifications. Architects have few skills in grading and topography; landscape architects fail to grasp aesthetics or philosophies of building types. An even bigger problem is how this lack of intellectual reciprocity affects the relationship between the two professions: they look down on one another.

Callaway would like to see both professions more broadly educated in each other's disciplines with a real effort to bridge the divide. Some academics have proposed the idea that, in the future, there will be no division; architecture will absorb landscape, or vice versa, and we'll be left with a profession of "placemakers." It's a fabulous, if seemingly unrealistic notion, but we can get an idea of how collaborations with architects might come about by looking at the collaborative work of landscape architects and artists.

With the old mindset, artists produced objects that landscape architects then "sited" in their designs. The new mindset has artists and landscape architects creating places that are at once designed landscapes and pieces of art. Some examples include Michael van Valkenburgh's collaboration with Ann Hamilton on a new riverfront park in Pittsburgh; the work of Ignacio Bunster-Ossa, principal of the multidisciplinary firm Wallace Roberts and Todd, with artist Jodi Pinto; and Paul Friedberg's work with Jackie Ferrara. Pinto describes her work with Bunster-Ossa, on a redesign of the coastal frontage of Santa Monica, Calif., as a tempering dance, a "kind of weave, in which you can't pull the thread from any part of the design without destroying it." Paul Friedberg says the artist acts as a foil to the designer. "Artists deal with ambiguity and paradox," says Friedberg, "whereas landscape architects and architects deal with total resolution. We had two views: one that said things are complete, and one that said they're not."

The issue that concerns Friedberg most is whether landscape architects—and any architects for that matter—have the right value system for collaborating. For these professions to evolve, they need to shed some of the Modernist baggage that holds them back, including the idea of designer as sole genius, in favor of the broader concept of generalist, cross-disciplinary explorer.

Indeed, a casual survey of young talent in the profession seems to indicate a trend toward crossing previously impenetrable boundaries. A good example is Cliff Garten, a potter, whose work gradually became larger and more spatially oriented until the next logical step was landscape. He received his MLA from Harvard and is now working in SWA's Laguna Beach, Calif., office. Garten designed a well-regarded art park in St. Paul, as well as the interior landscape of the new Memorial Sloan-Kettering Medical Center in New York City. Another artist-turned-landscape-architect to watch is Mikyoung Kim. Like Garten, she was educated as a sculptor and brings that sensibility to landscape. Among her first commissions are two courtyard gardens in Seoul that transform the minimalist idiom with an eye toward landscape's experiential quality.

To each his own

While many landscape architects welcome increased interest in their profession, some observers warn against excessive emphasis on cross-disciplinary projects. The evolutionary pressures on landscape architecture in the last five years have made it an extremely complex profession, one that is not easily understood from the outside. Hargreaves, for one, recognizes that while there are times for true collaboration, the more appropriate model is cooperation, in which architects do their thing and landscape architects do theirs. And from this division, he says, a "natural gravity" will determine who leads and who follows.

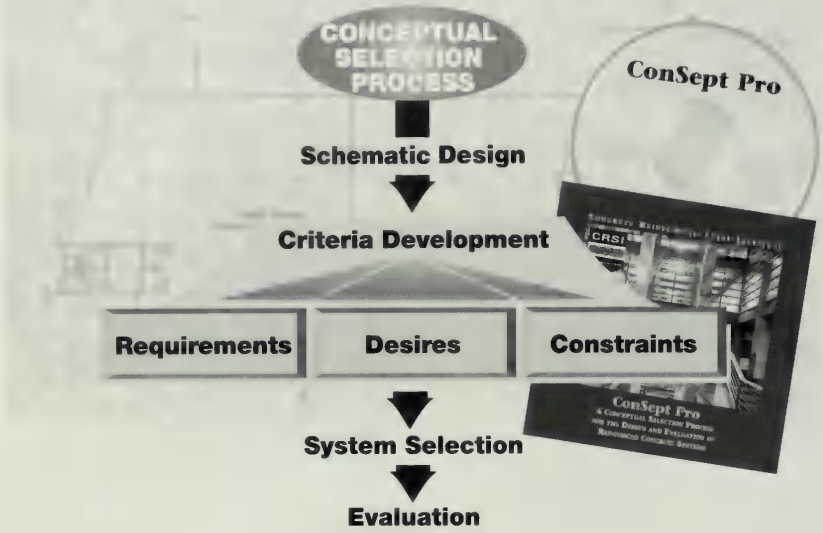
"Clearly, architects look over the fence, see a rebirth in our profession, and see larger processes in what is called placemaking," says Hargreaves. "But they will never be able to come to grips with that because architecture is always formal. Landscape architecture resists a formal solution."

Whether in cooperation or complete collaboration, it's time to introduce more flexibility to the dialogue between the professions. ■


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CIRCLE 76 ON INQUIRY CARD

Dates & Events

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in the world since Jan. 1, 1997. Winners will be featured in fall issues of *Business Week* and RECORD. To register, call 888/242-4240, or visit www.architecturalrecord.com.

DuPont Benedictus Awards
Submission deadlines: March 6 (professional architects); March 24 (students)
This international awards program, open to professional architects and students from any country, recognizes the use of laminated glass in commercial and residential projects. Winning architects receive a sculpture by glass artist Hans Fräbel; winning students receive cash awards for their programs. Entry forms are available from the AIA and the UIA and can be downloaded from www.e-architect.com/pia. For inquiries, call E. Jackson Jr. at the AIA, 202/626-7446, or Joanna Hanes-Lahr at the DuPont Benedictus Awards, 202/393-5247.

AIA Young Architects Forum/Germantown, Pa., Habitat Competition
Submission deadline: April 1
This design competition coincides with the 2000 AIA national convention in Philadelphia. "Building Livable Communities" asks entrants to design an urban rowhouse prototype for Germantown, Pa. The competition is open to young architects (those licensed 10 years or fewer), architectural interns, and students. For details, E-mail mottc@aiamail.aia.org.

Martin Luther King, Jr. National Memorial
Registration deadline: April 1; submission deadline: May 1
Entrants in this international competition to design the King memorial for its site on Washington's Tidal Basin, are asked to embody "the man, the movement, and the message." Anyone can enter; interdisciplinary teams are encouraged. To register, send a check for $75 accompanied by a letter listing the entrant's address, phone number, and E-mail address. Checks should be made out to "M.L. King Jr. National Memorial" and sent to Dr. E. Jackson Jr., Design Committee, Martin Luther King Memorial Project Foundation, Dept. 211, Washington, D.C., 20055. Visit cluser1.bellsouthonline.com/mlk for more information. ■

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ANSWERS

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1. Thermoplastic membranes are set in the field with exposure to the elements. The seams are welded with a heat gun, which makes them stronger than the sheet material. In thermoset membranes the seams are lapped and glued. This connection is often the weakest point in the system. Thermoplastic membranes are easily recycled, but thermoset membranes are not. Thermoplastics can be melted, purified, and re-extruded.

2. Single-ply roof membranes are flexible sheets of synthetic polymers. Membranes range from .033 to .060 mils thick, though they are available in heavier sheets. Most have a reinforcing sheet of polyester to prevent puncture, increase wind-load resistance, and improve dimensional stability. This layer is not necessary for some applications. There is a range of attachment methods, depending on the location of the roof and the type of membrane.

3. Sheets of membrane are mechanically anchored, chemically adhered, or ballasted. With mechanical attachment methods, clips and metal plates, batten strips, or bars, are used. Fasteners secure the sheets at the seam edges. If there are not enough fasteners, the wind uplift can cause the fasteners to eventually work loose. A conservative fastening schedule is normally advised. Chemically adhered membranes use adhesives to hold the membranes to the roof substrate. The time and labor to apply the adhesive and smooth the sheets in place adds to the cost of the job, but the bond achieves a roof that is highly resistant to wind, water, and dimensional changes. Ballasted roofs weight the membrane with gravel or pavers. This is the least expensive application, but there are drawbacks. Wind can blow the ballast off causing damage to the membrane or other surfaces.

4. TPO combines synthetic rubber with polymers, such as olefins, making a more stable formulation. This advantage, combined with the membrane's low cost, makes it attractive. Disadvantages include a lack of testing and a limited number of installations, making it difficult to accurately assess the performance of the membranes.

5. Roof membranes are made of several different chemical compounds. The oldest is chlorosulfonated polyethylene (CSPE), commonly known as Hypalon. The most widely used is ethylene propylene diene monomer (EPDM), commonly know as a rubber roof. Polyvinyl chloride (PVC) has been reformulated over the years to improve its durability and is available only as a reinforced sheet. The newest is thermoplastic polyolefin (TPO).

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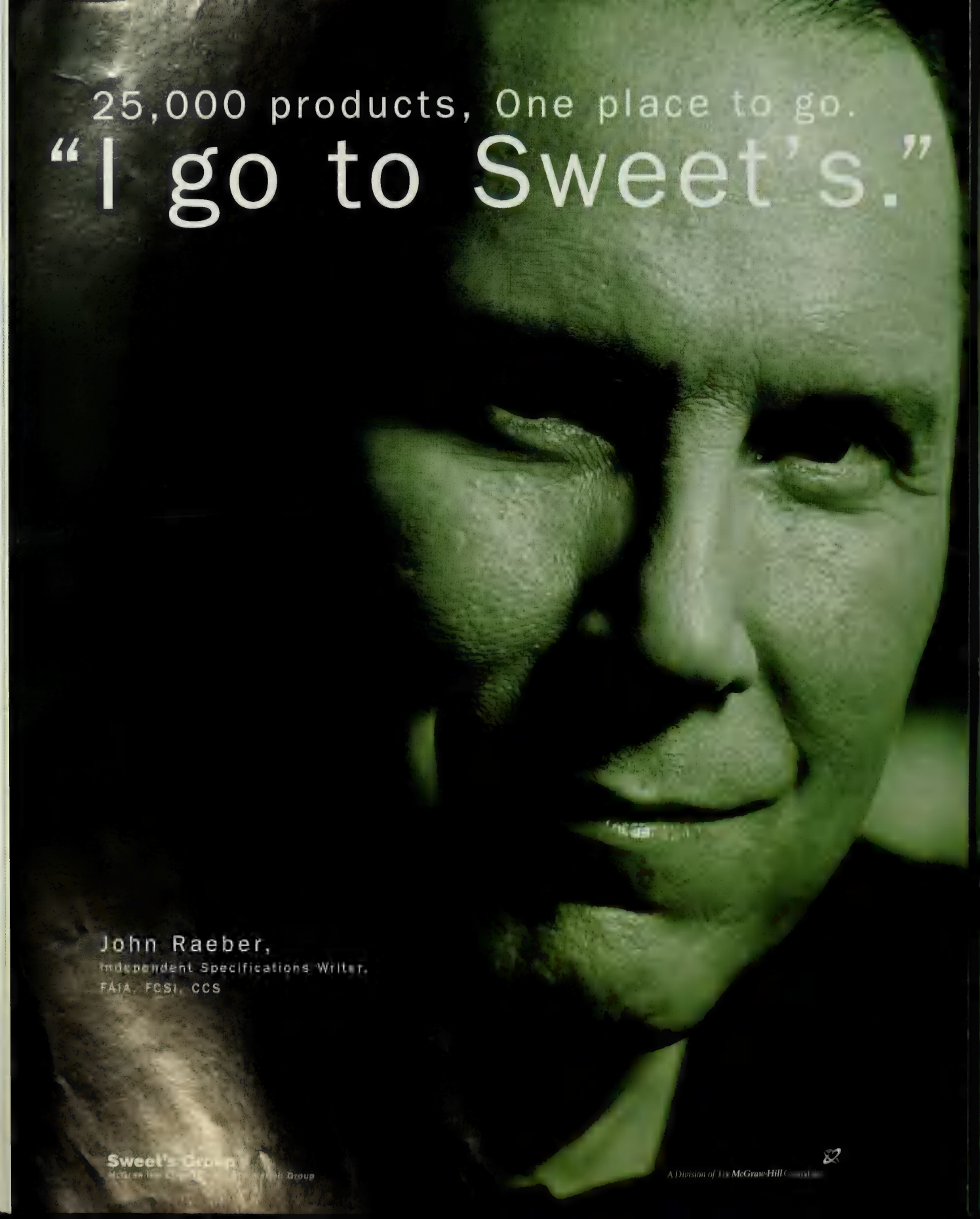
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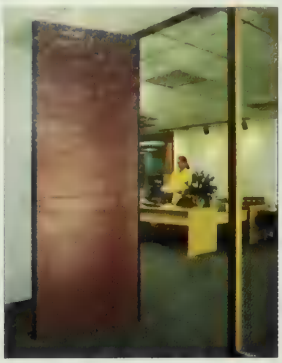
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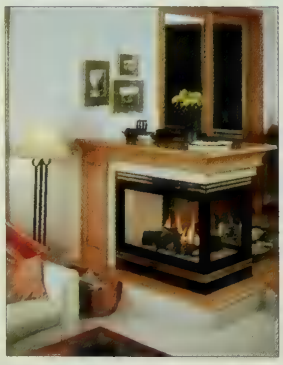


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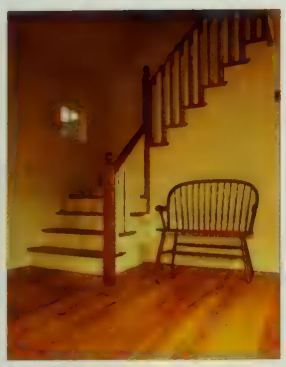
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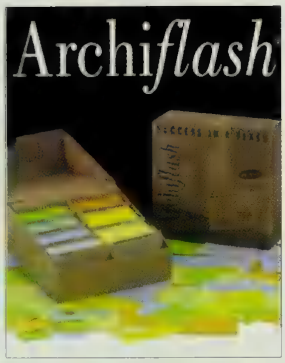


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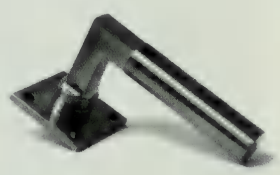


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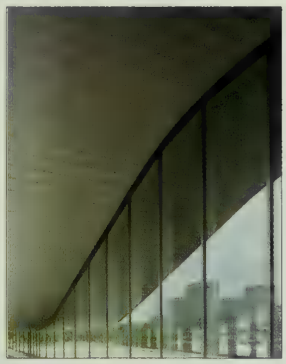


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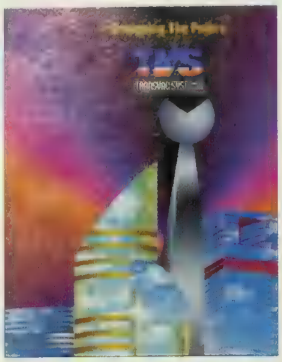


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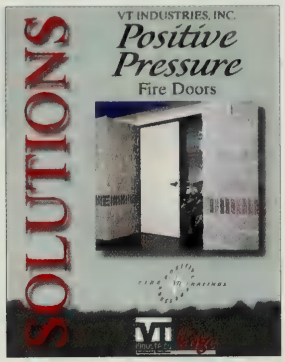


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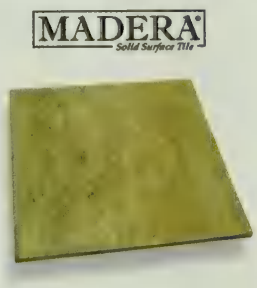


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Assists the Principal with design presentation and development expertise and assists at client meetings; prepares working drawings to code requirements and prepares specifications to be used as contract tender documents; professionally seals documents as required; follows the construction process to ensure conformity with tender documents and records the progress of the work; verifies/approves draw requests submitted by the builder and verifies costs for extras/change orders; keeps working drawings up-to-date with approved construction modifications and prepares additional detailing as required; supervise office staff; and assist the clients during all phases of the projects. Requires Bachelor's degree in Architecture and min. eight years of experience in job offered or in architecture related to high-end residential programming, design, and working drawing production, including construction and finish detailing, site inspections, and meetings with contractors and clients. Also requires: 1) Eligible for architectural registration in South Carolina. 2) Exp. in supervision of architectural and secretarial staff. 3) Exp. in client development and relations. 4) Exp. in project management relating to design/build. 40 hrs/week, 8 am – 5 pm, Monday-Friday. Job site: Bluffton, SC. Salary: $50,000/year. Each applicant must submit two resumes to: Ms. Regina D. Ratterree, E&T Technical Services, SCESC-SC 2000984, PO Box 1406, Columbia, SC 29202. All applicants must have the legal right to work in the US.

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ARCHITECTS

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Are sought for Fall 2000, teaching: Architectural Design and one of the following: Arch. Structures, Construction, Urban Design, Urban History, Arch. Theory, Arch. Visualization, or Basic Design. Judson College is a Christian college of the liberal arts and professions committed to an evangelical expression of the Christian faith, seeking candidates desiring to teach in such a setting. Applications due Feb. 15, 2000. Send resume, brief portfolio, and a short statement of your Christian liberal arts/professional teaching philosophy to: Arch. Search Committee, Dept. of Architecture, Division of Art, Design & Architecture, 1151 N. State St., Elgin, IL 60123. Phone: 1(847) 695-2500 ext. 3350, Fax: 1(847) 695-8014. email: jhopkins@judson-il.edu

Rensselaer

SCHOOL OF ARCHITECTURE FACULTY POSITION

The School of Architecture at Rensselaer Polytechnic Institution invites applications for a tenured/tenure track position beginning Fall 2000. Candidates must have earned a master or doctorate in architecture or related field. Architectural Technology and Design: Candidates should have demonstrated strength in construction technologies and computer assisted design integration. Technology and design faculty are expected to lead in teaching the technology and design studio sequence within the architecture and building science degree programs. Also the chosen candidate will be expected to undertake signficant research and scholarship. Candidates interested should submit a resume, statement of professional interests, as well as names/addresses of at least three references to: Chair, Faculty Search Committee, School of Architecture, Rensselar Polytechnic Institute, 110 8th Street, Troy, NY 12180-3590. Review of applications has begun and will continue until the position is filled. Renssilaer is an equal opportunity/ affirmative action employer. Applications from women and minorities are particularly encouraged.

FACULTY POSITIONS AVAILABLE

THE AMERICAN UNIVERSITY OF SHARJAH
UNITED ARAB EMIRATES
SCHOOL OF ARCHITECTURE AND DESIGN
Faculty Openings for Fall 2000

The American University of Sharjah (AUS) is a non-profit, coeducational institution of higher education formed on the American model. Student applicants are considered on the basis of their qualifications regardless of race, color, gender, religion, disabilities, age or national origin. The medium of instruction is English. Baccalaureate degrees are offered in twenty majors by the faculty of four schools: Arts and Sciences, Business and Management, Architecture and Design, and Engineering. The curricula of the programs are based on the American model of liberal education and include a strong general education requirement.

The 375 acre University City campus is located ten miles from the center of Sharjah and is situated between the shores of the Arabian Gulf and the Gulf of Oman. The Emirate of Sharjah has beautiful beaches and lovely varied countryside.

Architecturally distinguished facilities have been constructed to accommodate 4,000 students, including eight academic buildings as well as administrative, library, residential and athletic structures. All academic buildings are equipped with state-of-the-art language, science, and engineering laboratories and computer facilities. The projected student enrollment in the 2000 fall semester is 2,000.

The School of Architecture and Design has the potential and is committing the resources to exert regional leadership in design education in the Middle East. The School offers first professional degrees in architecture, interior design, heritage management, visual communication, and multimedia. The School is committed to digital media as tools integral to design and pedagogy and expects Macintosh OS proficiency from its faculty. Faculty must be capable of offering diversified contributions to a curriculum that is taught on all levels as a collaborative exploration of ideas. The successful candidate must demonstrate a strong teaching record in studio courses and in the specialty, an established research interest and record of scholarship within the discipline, and/or an established record of professional practice centered on the specialty, and the ability to teach the specialty to all levels, particularly at the formative, foundation level of a design program that serves a mix of graphic, visual design, multimedia, and architecture students.

The Common Foundation Year Program seeks applicants to formulate and teach effective studio courses in descriptive and analytical drawing, graphics and 3-dimensional design, and/or digital media as tools for design.

The Architecture Program seeks applicants (1) to teach intermediate and advanced studio, with specialties in environmentally responsive architectural form, urban design, and urban history. Expected to integrate digital media/technologies with studio teaching at both levels; and (2)to assist in foundation courses in digital media and first professional studio. Primary responsibility to teach digital media as tools for architectural design within the context of on-going studio problems. Requires knowledge and ability to teach Macintosh OS, PowerCADD, formZ, PhotoShop, Word, Excel.

The Interior Design Program seeks applicants to teach intermediate and advanced studio, with specialties in space planning, interior construction technology, interior design history, exhibition design, and/or lighting technology. Expected to integrate digital media/technologies with studio teaching at both studio levels.

The Heritage Management Program seeks applicants to develop the new program and to teach courses in the histories of art, architecture, design, and interior design, and in documentation, research, project planning, and conservation and presentation of movable and immovable cultural property. Special interest in Islamic culture is an advantage.

The Multimedia Program seeks applicants to teach courses in sound, video, editing, and production, interactive authoring, and/or interface design, in building a rapidly growing media lab and curriculum. Professional and/or teaching experience with digital linear and non-linear systems is preferred.

The Visual Communications Program seeks applicants to teach foundation and intermediate graphic design and/or illustration courses. Ability to integrate digital and traditional media, including photography is required.

Applicants for all positions should show evidence of a commitment to excellence in teaching. As appropriate, faculty will be expected to employ methods that utilize new instructional technologies. Experience with project based instruction and/or interdisciplinary instruction is welcomed. Faculty must be committed to the vision of this institution as an independent university thoroughly grounded in Arab culture while serving the diverse populations of the region.

Compensation is competitive. There is no income tax in the UAE. Initial contracts are normally for a period of two years and are renewable. Rank will be determined by previous employment history. Benefits include: home leave for faculty and their resident dependents between academic years; new on-campus housing for all members of the faculty without charge including utilities; education allowances for tuition for up to two children from grade one through four years of higher education; medical insurance and dental plan.

Interviews will be held at various sites. Positions are open until filled with preference to early applicants. Faculty who are appointed must be in Sharjah by August 23, 2000.

Applicants should send cover letter and CV (including the names and addresses of three references) to:

Sharjah Liaison Office
American University
4400 Massachusetts Avenue N.W.
Washington, DC 20016-8173
Email: sharjah@american.edu

ASS'T/ASSOC./FULL PROFESSOR IN ENVIRONMENT AND DESIGN TECHNOLOGY

The Department of Architecture and Urban Design at UCLA invites applicants for a tenure-track position beginning academic year 2000-2001. The Department seeks candidates with expertise in environmentally responsive technology, lighting, sustainable design of products, systems, buildings, or communities, or green building technology, with implications for architecture, urbanism, or regionalism. The successful candidate will be able to work across disciplinary boundaries as well as in the design studio context, and will be expected to conduct advanced research or practice related to her/his expertise. Academic training and experience are appropriate from architecture, landscape architecture, urban design, or urban planning. The Department has demonstrated a long-standing interest in environmental issues related to architecture and urban design, and seeks to extend this tradition in new directions into the coming millennium. Architecture and Urban Design at UCLA is structured around three primary content areas: design, cultural studies, and technology. Candidates for this new faculty position should be able to integrate their particular expertise with other aspects of the curriculum. It is possible but not necessary for the candidate to share an appointment with the Institute of the Environment, a cross-disciplinary program on campus. The Institute of the Environment brings together research, teaching, and community outreach from UCLA's diverse environment-related programs, with the objective of addressing the full breadth of environmental issues facing today's society. The appointment can be made at any level, with special attention given to junior level candidates. Candidates are requested to furnish a letter of intent with a curriculum vitae and the names, phone numbers, mail and e-mail addresses of three references able to provide knowledgeable evaluation of the applicant's qualifications. Please do not send additional supporting materials until they are requested. Applications deadline: February 15, 2000, or until filled. Address letters of application to Dana Cuff, Acting Chair, Department of Architecture and Urban Design, UCLA, 1317 Perloff Hall, Los Angeles, California 90095-1467. The University of California, Los Angeles is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT/ASSOCIATE PROFESSOR

The School of Architecture invites nominations/ applications for a tenure-track position to engage the depth and breadth of the discipline to teach in a five-year accredited professional degree program. The position is to teach one collaborative design studio and practice related course (such as, seminar, programming or CAD) per semester. Studio teaching should be directed towards integrating contemporary theories, technologies, and issues of practice. Candidates must actively engage scholarship and research, university committees, and community service responsibilities. We are seeking individuals who will work with faculty and students to foster diversity and address a variety of professional and design issues through dialogue, teaching, and research. Requirements: Professional terminal architecture degree, registration, minimum of five years professional experience, and CAD literacy. Preference will be given to the candidate who is practicing with recognized professional work in the field. Rank and salary commensurate with experience. The University of Louisiana at Lafayette (formerly University of Southwestern Louisiana) is an equal opportunity employer. Applications/nominations will begin on January 1, 2000 and will be accepted until position is filled. Please submit a letter of interest, resume, and portfolio, references to: Hector Lasala & Robert McKinney, Co-Chairs Faculty Search, School of Architecture, University of Louisiana at Lafayette, PO Box 43850, Lafayette, LA 70504-3850. For more information call 337-482-6225, e-mail: mckinney@louisiana.edu, or www.louisiana.edu.

at T: (801) 974-2843 - F: (801) 972-9409

ASSISTANT OR ASSOCIATE PROFESSOR
THE UNIVERSITY OF TENNESSEE
TENURE TRACK FACULTY POSITIONS
IN ARCHITECTURAL TECHNOLOGY

The University of Tennessee, Knoxville-The School of Architecture seeks candidates for one or more, full-time, tenure track position in architectural technology, either at the Assistant or Associate Professor rank, commencing Fall 2000. Candidates should be qualified to teach required and elective courses at all levels of both the undergraduate and graduate programs with their primary area of expertise being either structures or environmental control systems. An additional area of specialization in computer applications, lighting, materials and/or building construction technology is preferred. An interest and aptitude in the integration of design and technology through studio instruction will be a major consideration. Prior to appointment, applicants should possess a graduate, post-professional degree in engineering or architecture. Special consideration will be given to candidates who demonstrate multi-disciplinary interests and those possessing both engineering and architectural degrees will be given preference. A background in architectural education, including experience in teaching, is valued. Preference will be given to those candidates who possess professional registration and/or experience in distinguished practice. All applicants must have the potential and capability to pursue self-defined intellectual objectives through research, scholarship, creative work and/or practice. Candidates should submit a letter of interest and objectives, a curriculum vitae, photocopied select examples of personal, professional, and/or academic work (non-returnable), and the names of three references to: Chair, Technology Faculty Search Committee, School of Architecture, The University of Tennessee, 1715 Volunteer Boulevard, Knoxville, TN 37996-2400. Deliberations will start February 15, 2000 and will continue until the position is filled. UT Knoxville is an EEO/AA/Title IX/ Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

ASSISTANT OR ASSOCIATE PROFESSOR
THE UNIVERSITY OF TENNESSEE
TENURE-TRACK FACULTY POSITIONS

The University of Tennessee, Knoxville- The College of Architecture and Design seeks candidates for one or more full-time tenure track positions in architectural design, at either the Assistant or Associate Professor rank, commencing Fall 2000. Candidates should be qualified to teach architectural design at all levels in both the undergraduate and graduate programs, as well as a second elective course in an area of related specialization, such as computer-aided design, drawing, interior design, landscape architecture, structures, technology, or theory. Prior to appointment, applicants should possess a professional degree in architecture, including a graduate degree in either architecture or another related field (i.e., art, landscape architecture, urban design, planning, etc.). Secondary interest in the integration of design and construction technology is one of our priorities. Experience in teaching is valued. Experience in distinguished practice and professional registration is desirable. All candidates must have the interest and potential to pursue self-defined intellectual objectives through research, scholarship, creative work, and/or practice. Candidates should submit a letter of interest and objectives, a curriculum vitae, photocopied select examples of design work (non-returnable), and the names of three references by February 15, 2000 to: Chair, Design Faculty Search Committees, School of Architecture, The University of Tennessee, 1715 Volunteer Boulevard, Knoxville, TN 37996-2400. UT Knoxville is an EEO/AA/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

BALL STATE UNIVERSITY

DEPARTMENT OF ARCHITECTURE

BALL STATE UNIVERSITY

MUNCIE, INDIANA

The Department of Architecture is rostered in the College of Architecture and Planning along with the Departments of Urban Planning and Landscape Architecture. Also residing there are the Housing Futures Institute and Community Based Projects. Along with the professional degree in architecture, a master's in historical preservation is offered as well as a post-professional degree in architecture. The nationally recognized Center for Energy Research, Education, and Service is co-located in the CAP building. Ball State University and the Department of Architecture includes internationalization and information technology in its hallmarks of excellence and stresses both teaching and research in its mission.

Two full-time, tenure-track positions will be available August 18, 2000.

Position 1. Responsibilities: teaching design studios and courses in computers in design; providing leadership in developing the curriculum in the area of computational tools for designing.

Position 2. Responsibilities: teaching design studio and courses in one or more areas such as architectural theory, environment-behavior studies, or urban design.

Minimum qualifications: master of architecture degree or equivalent. Preferred qualifications: registration (license to practice architecture), quality of design work and/or evidence of contributions to the profession through practice and service; record of teaching experience and commitment to work in a collaborative environment; publications and or appropriate research work as evidence of scholarly contributions. Rank depends on qualifications. Send letter of application identifying the position sought, curriculum vitae, three letters of reference, official transcripts of highest degree earned, samples of student and professional work, and evidence of teaching and research ability to: Chair, Search Committee (1 or 2), Department of Architecture, Ball State University , Muncie, IN 47306. (Tel: 765-285-1900: Fax: 765-285-1765) Review of applications will begin March 1, 2000, and will continue until the positions are filled. (www.bsu.edu)

Ball State University is an equal opportunity, affirmative action employer and is strongly and actively committed to diversity within its community.

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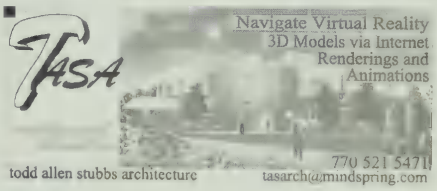
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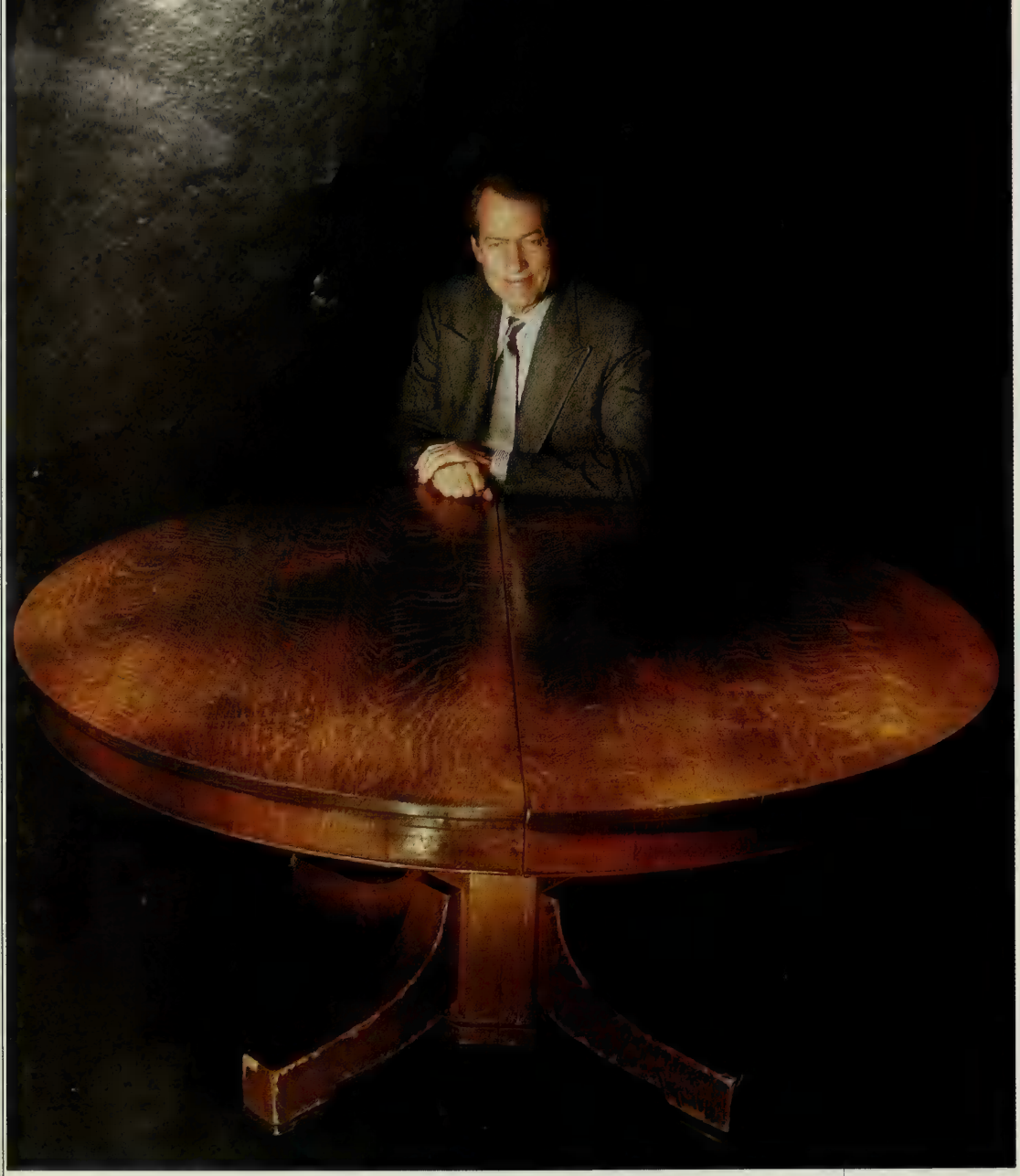
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(Architect) interviewer Charlie Rose takes questions

Interviewed by Robert Ivy

Q: *Why do you interview architects?* Because they're interesting, first. If Philip Johnson is not interesting, I don't know who's interesting. They have vision. They have egos. Most of them have personalities. They range all over the landscape in terms of how they see what's good and bad and right and wrong. And there is finally this wonderful competition, jealousy, ego among them. More so than most professions I know.

Does anybody care? They care that it's part of the mosaic I present to them. My audience likes that on this program there is politics, entertainment, books, architecture, painting, science, and a sense of what's new, who's doing something interesting. And people can [relate to architecture]; everybody lives in a building, works in a space. As far as I know . . . the number of people watching doesn't drop when we have an architect. Maybe I do too much.

Who picks who's on the show? I do. I'm always asking who's new? Who's happening? Why haven't we had any young architects? Any old architects? Any women?

Out of these architects you've talked to, are there any particular experiences that stand out? They're different. Bob Stern is as different from Michael Graves as Michael Graves is different from Rem Koolhaas. Yet I don't have any negative reaction to any of them.

You've had Frank Gehry on several times. More than that. I like Frank a lot. But I also like Richard Meier a lot. I like [Charles] Gwathmey. I like Peter Eisenman.

But these are architects and they're dealing with a topic that can be rather abstract. If you ask me what's least satisfying about my presentation of architects, I've never felt like we were able to do justice to it. The best way to do it is go to a building and walk around [with] two or three cameras [for] two or three days. I don't have that. I have 20 minutes at this table with slides and pictures . . . on the screen. Doesn't do justice to any building I've ever seen.

Do you, then, have an agenda that you want to achieve with architecture? No. Do I hope people will appreciate architecture more? Yes. Do I hope it will be a stimulus for people to take note? Yes. Do I want them to like or not like postmodernism? No. Do I want them to like or not like a particular architect? No. I want them to say, because I watch *Charlie Rose*, I've developed an interest. ■

Photograph by Jordan Hollender

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Oklahoma City Federal Campus designed by Ross Barney Jankowski for GSA.

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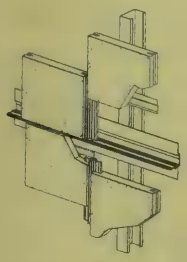
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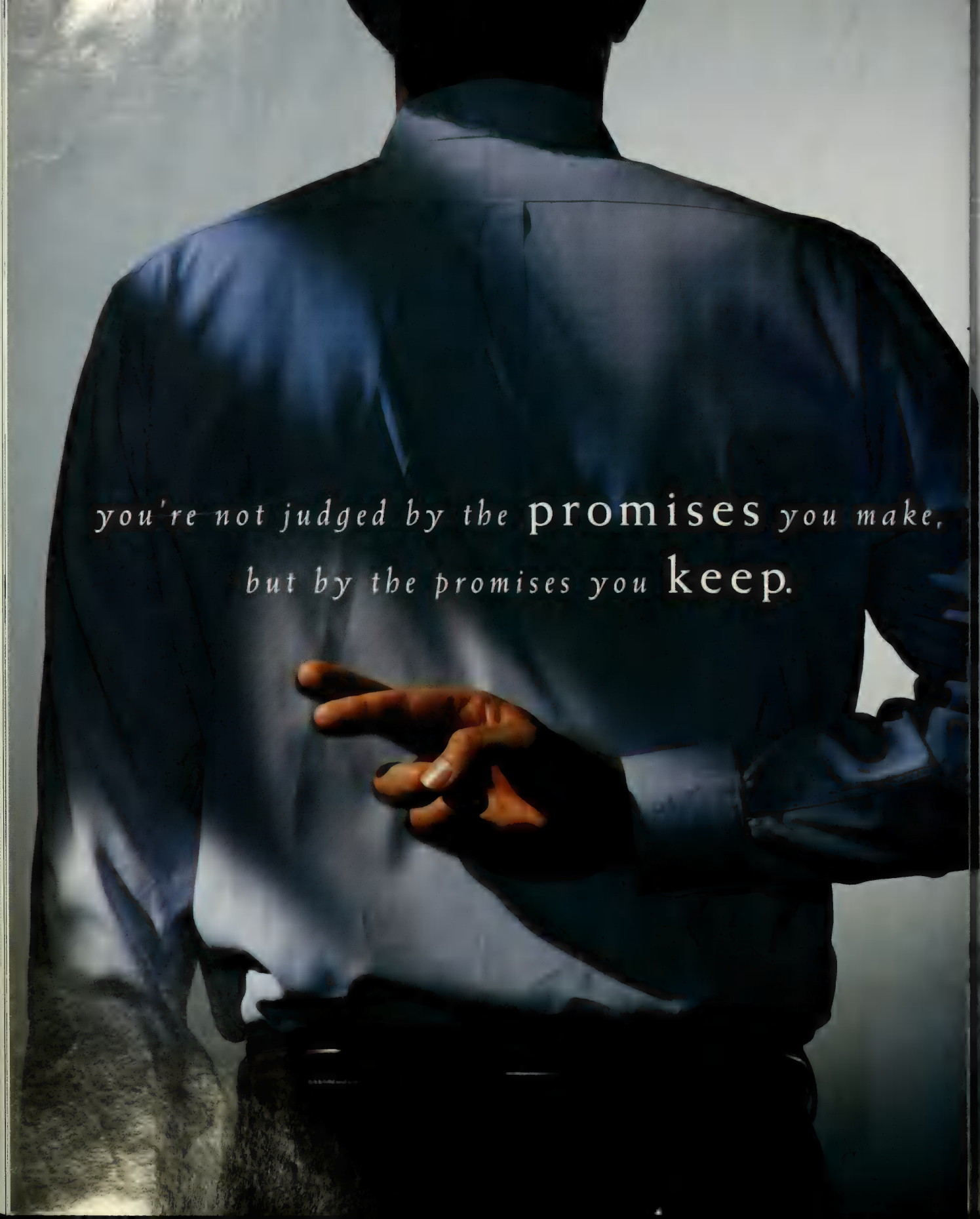
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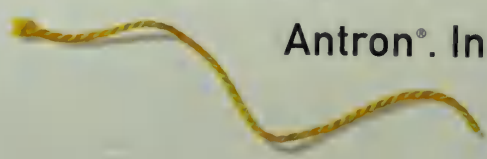
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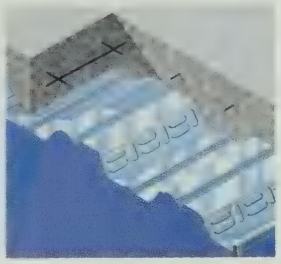
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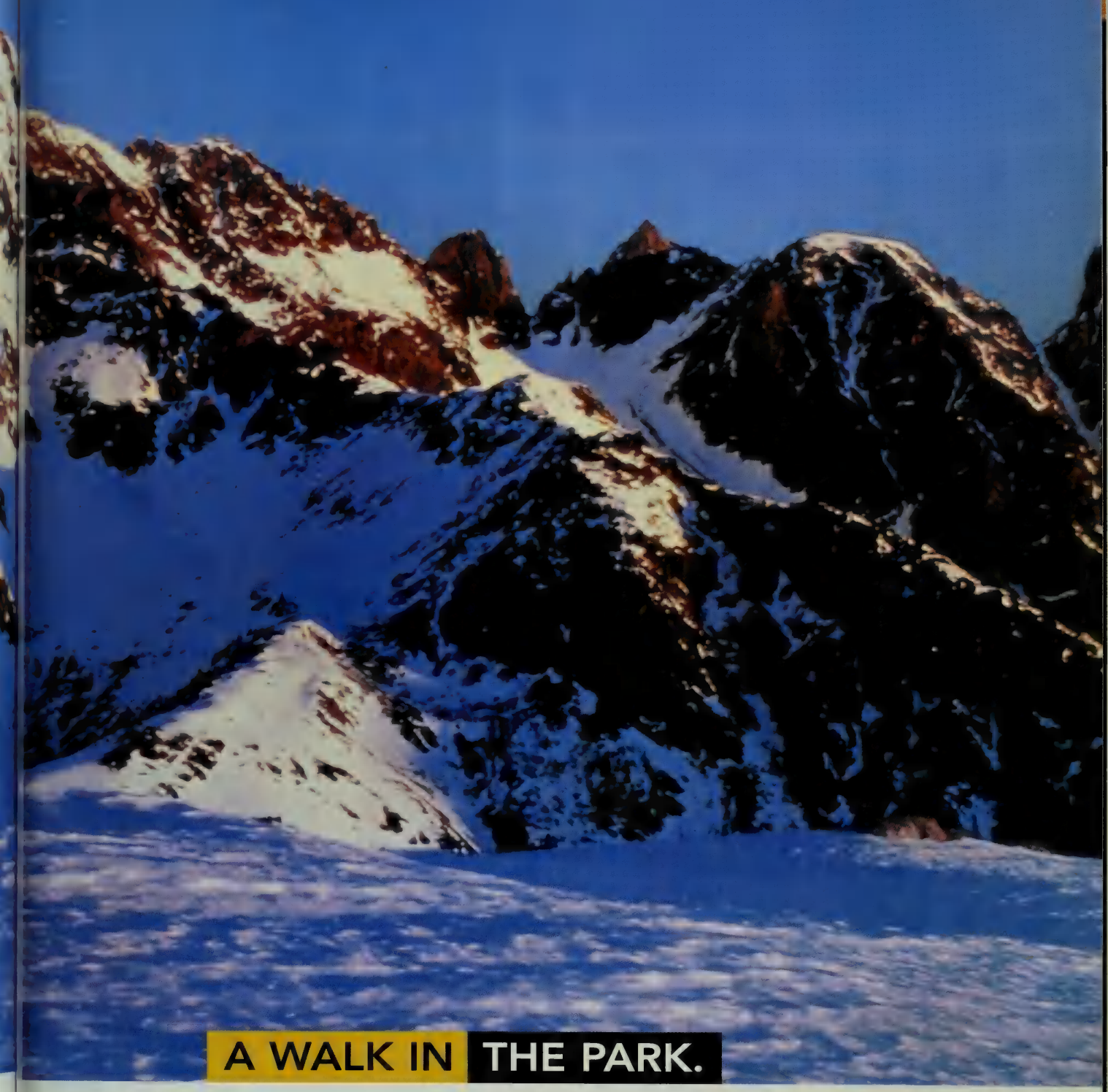


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Just another renovation

Editorial

By Robert A. Ivy, FAIA

Who said renovations are simple? The university commission had begun with such fanfare. It seems only yesterday that the provost called a kickoff meeting in the school cafeteria, over rubber chicken, for you, the new architect, to meet the powers of academe. What a group—six vice presidents present, three deans, the head of the state building authority, his assistant, two inspectors, and the campus architect—and the university types all addressed each other as "Dr." You itched, a bit uncomfortable as the only Armani-wearing, round-glasses-sporting, non-doctoral person in a sea of gray suits.

Unfortunately, everyone there but you already knew a secret: with one stray match, the 110-year-old tinderbox would go up in flames. Oil-rubbed wood floors make superb fuel. You were supposed to bring the old hall up to code, which you were perfectly willing to do, despite the fact that the state historic preservation officer, who was attending the luncheon (a thin man, carefully cutting his chicken in the corner), didn't smile very much.

In high hopes, buoyed by the toasts, you proceeded with the work. Everyone agreed that the building needed a new set of stairs, which you promptly designed. Then the historic preservation officer nixed the neoexpressionist fire-stair tower that was your sole personal flourish. The complications compounded with every turn, from the ductwork in the corridors to the wiring. Every note brought a rejection, even for the sprinkler system.

So, you flew the lot up to a neighboring university 300 miles away, where a similar problem had been solved. The trip had a good effect, and that night, at the Olive Garden, where everyone had too much wine, they admitted that they were actually "on the same team," even the preservationist, who wept effusively.

Meanwhile, to tie things down, you hired a code consultant, at your own expense, who backed up what you had already suggested in a 200-page, 2-inch-thick document that cost you $12,000. The fire-code guru suggested sprinklering the glazed walls separating the wooden stairways for "an equivalency rating." It was daring, but worth every penny to meet the code.

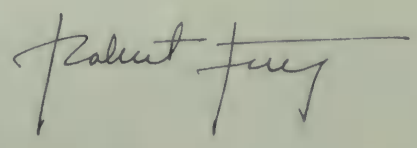
Just when things had been resolved, disaster struck. The state building director had a stroke, throwing the entire process into hiatus while he regained the ability to speak. His job, which involved late-night calls from the legislature and harangues from the governor, finally got to the man, an architect with an even temper and strong political skills, who had allowed the pressure to gnaw on him internally. Subsequently, he conducted his meetings with a slight lisp.

As he recovered, a group amnesia fell on the assembled monthly meetings, such that no one could rightly remember just how and why all those decisions had been made. Liabilities loomed. You, and you alone, seemed to bear the weight of memory, but it was fading fast.

Despite this circle through the Inferno, it all worked out. At the final inspection, everyone slapped each other on the back, admitting that the work eminently suited the old hall. Kids casually draped themselves on the benches and the steps, jabbering away and sucking on soft drinks as if this building had been transformed without human aid. It was, in short, a miraculous conversion.

On the rededication day, with the president of the university and even the great philanthropist there, the building was renamed, and where were you? Back of the dais, third row from the rear, unacknowledged but unconcerned, focused on the installation of the light fixtures, which seemed a trifle skewed. One more call to the contractor.

As the crowd dispersed, you walked past the plaque that listed the governor, the building and university officials, and you, the architect, on the last line. You touched the plaque and smiled: At least they spelled your name right. Have you been there?




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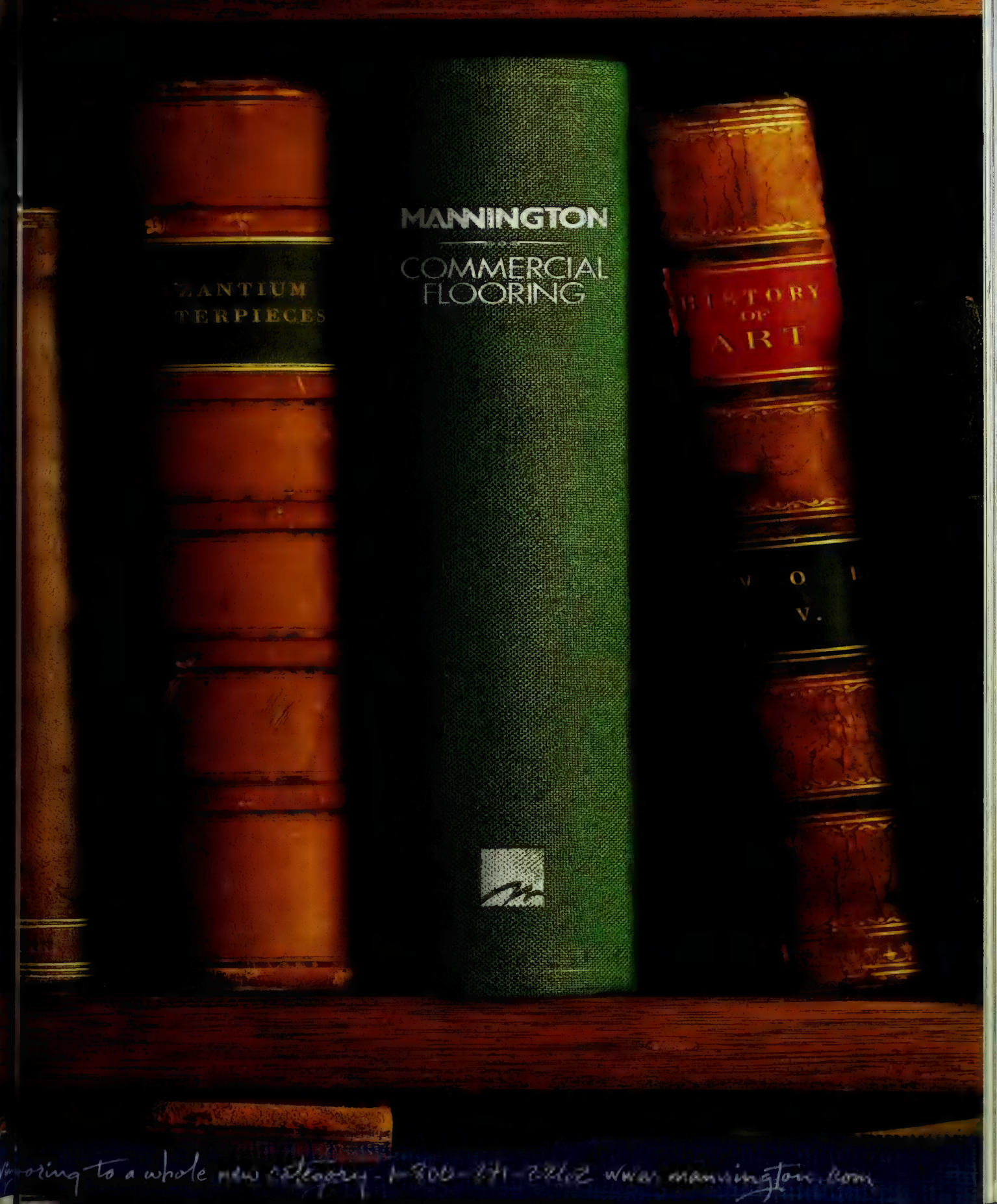
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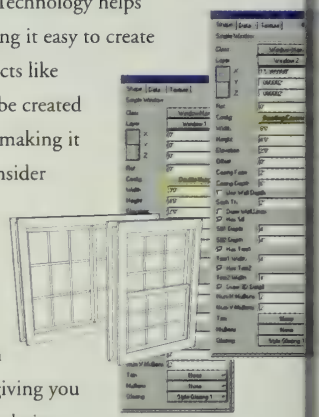
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CIRCLE 11 ON INQUIRY CARD

Letters

Driving housing points home

Your November 1999 article on the state of public housing ["Public Housing: A Hard Assessment," page 76] raised many fine points, but neglected to discuss some necessary issues.

One issue is that the home mortgage deduction program is this country's most successful "subsidized housing" effort. Clearly, without that "program," the landscape of housing, particularly the single-family residence, would look radically different. Unlike support for the public-housing movement, support for this form of indirect public-financed housing is broad, cutting across class, social standing, and cultural preference.

Issue two: It will take more than good design intentions to hold the tide against the decline and abandonment of HUD's "new" publicly sponsored housing developments. Housing authorities will have to hold the line, municipal leaders will have to show more than good faith, and residents will have to be vigilant. Beneath the surface, however, the city's social, racial, political, economic, and cultural mix remains volatile and antagonistic.

The emergent middle-class resident looks outside city limits for the education, recreation, and social benefits that mark a better quality of life. Your article leads me to wonder if we as a society are truly up to the task to expand on the optimism of an earlier and somewhat surer generation.

—George R. Hill
Baltimore

Don't fence us in

Witold Rybcynski [Critique, November 1999, page 29] writes that the Lawrenceville School campus is arranged around two open spaces. One is formal and the other informal in its layout. Rybcynski reports that the informal one is heavily used while the other one is not, then draws a direct correlation between the form and its popularity and extrapolates that the informal layout creates a democratic, American type of space while the formal type does not.

These are far-reaching conclusions. The design of an open space does affect its use, but as William Whyte has empirically proven, the effect is due to a complex series of determinants such as size, the straddling of paths, the equipment, its management, and the use and porosity of the buildings that surround it.

But this is to answer the small question. The larger question is the effect that formality of design has on utilization. In this case, Rybcynski's contention can be disproved instantly by remembering that cross-axial Bryant Park in New York City is crowded, while dozens of picturesque squares built in the 70s are not.

This however, assumes a rudimentary, utilitarian definition of *use*. Must public space, to justify itself, be heavily occupied? By such measure, the relentlessly commercial shopping mall would be the most successful space in America. But the fostering of civic pride and community consciousness are also palpable functions, and this effect can be achieved by passively gazing at a beautiful square or just knowing it is there. Hundreds of town squares, as well as the Mall in Washington, serve that purpose without being constantly trampled.

The biggest question behind the essay is the proposition that there is contradiction between formal design and a democracy. This notion, pushed to its conclusion, has led to a widespread and possibly dangerous tendency within the architectural avant-garde to equate order with repression, and by extension, disorder with democracy.

Look to the campus, said to be the only real invention of American urbanism. American campuses, from the University of Virginia through Columbia, S.U.N.Y. Purchase are much more orderly than the European universities, scattered as they are throughout the urban fabric. And the higher education purveyed in these American campuses is a triumphant achievement, unrivaled in the world for scope and quality, despite the fact it is subject to a hierarchy of president, provost, deans, chairmen, and the minutely classified professoriat.

Rybcynski is seldom wrong, but the correlation he draws between orderly and disorderly space at Lawrenceville is not a reflection of democracy or otherwise, but the manifestation of a different system of order: the position of spatial type in the rural-to-urban continuum, called the *transect*. Urbanism requires a full variety of open space.

The curious allergy to order and convention endemic to the architectural avant-garde is, I suspect, at the heart of Professor Rybcynski's bias. This may explain it: an experienced practitioner knows that a chaotic design vocabulary elides the contribution of the client. The architecture of a democracy has always been, and must continue to be, a shared common language. The elite, abstract language of the avant-garde represents the privileging of the artist. This, while acceptable when confined to the gallery and the salon, tends to become exclusionary when determining the design of the public realm. It is not democratic.

—Andres Duany
Miami, Fla.

Museum addition sedition

J. Carter Brown, in his critique of museum additions [October 1999, page 35] is clearly taken to enormous understatement. In his review, he wonders if perhaps Daniel Libeskind's proposed addition to the Victoria and Albert Museum in London might be uncomplementary to the adjacent existing building, suggesting that it is "too early to say." Too early? How about too late?

The directors of the famed Victoria and Albert have decided to proceed with the construction of Mr. Libeskind's completely uncomplementary, dominating white composition of intersecting cubes jammed into an inadequate space between the existing stately brick buildings along Exhibition Road. This is the wrong place for this addition! It is an addition that contains not a single obvious reference to its neighboring structures, and it is a project that the Victoria and Albert Museum directors and visitors will surely grow to regret. There is a place for buildings such as Mr. Libeskind's, but this is not it. The powerful forms of this structure need space and distance for full expression, and the adjacent buildings deserve more respect.

—Eric Lassen, AIA
Santa Barbara, Calif.

A rumble by the bay

I was confused by the placement of Lisa Findley's article regarding the ruckus over the design of San Francisco's de Young Museum (which is to be placed on the Music Concourse in Golden Gate Park) in December's RECORD News [page 55]. I'd like to share another view.

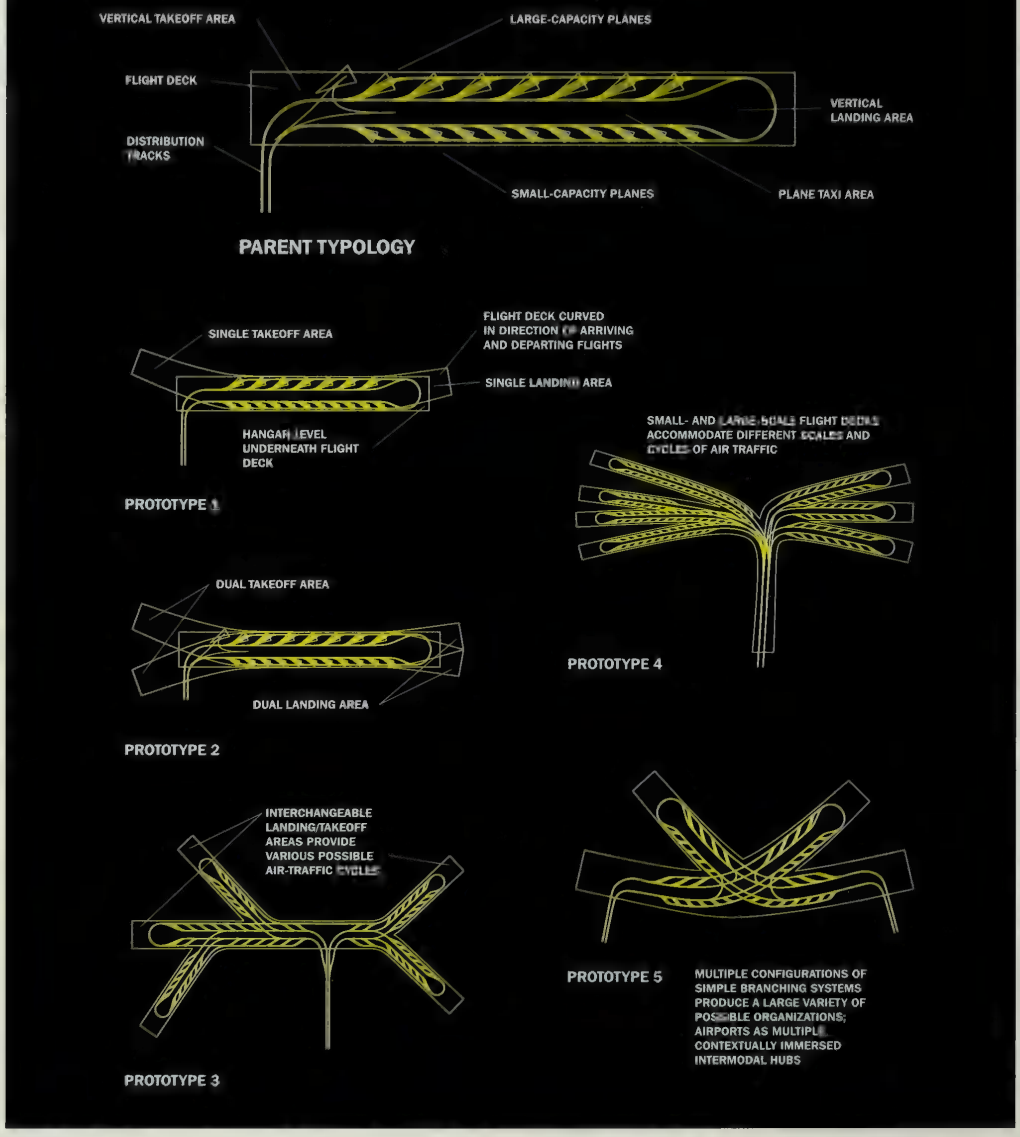
The article is mistaken in categorizing those concerned about de Meuron's design of the new de Young as if we are only preservationists. We have coalesced under the name "People for a New de Young" specifically to show that we're looking for a new design—one with the timeless quality of Lou Kahn's Kimbell in Fort Worth. We're concerned that the current proposal is not one for welcoming, but for separating the

effete from the rabble with its intellectually lofty design. Further, the Music Concourse is the formal core of the wonderful soft landscape of Golden Gate Park, and the buildings that surround it should play a transitional role bridging these contexts.

The article is mistaken in stating that the AIA supports the project. The board of directors of the San Francisco chapter of the AIA (on which I have sat for the past two years) sent a formal letter of support for the process the Fine Arts Museum board set up to obtain public input. The letter took no position on the design.

Those of us concerned about what the current design does to its environment are trying to assure that we have a new museum with which all of San Francisco can identify, rather than one, which the author admits, "is not easily understood."
—*Bruce Bonacker, AIA*
San Francisco

Lisa Findley responds: Bruce Bonacker is correct in stating that the letter of support sent by the AIA board of directors to the de Young Board supported the process rather than the design. The letter commends the de Young for its open and responsive public process and states that the process has influenced the design. The chapter did, in fact, endorse the design, however, through a letter from its Design Committee, read into the public record at the museum board meeting where the design was approved. Incidentally, 82 percent of those who spoke that evening were in favor of the project, 18 percent were against. It seems most trust that the talented, proven firm of Herzog and de Mueron, regardless of its nationality or architectural style, will develop its intriguing design concept into an excellent, site-sensitive building.



Prototypes for Reiser + Umemoto's airport, were printed incorrectly on page 121 of the December 1999 issue.

The butler did it

Brave new world, indeed! Where have I seen projects like those featured in your December issue [page 85]? In my library! *Kinetic Architecture* by William Zuk and Roger H. Clark, 1970, and *Arthropods* by Jim Burns, 1972, are two books that attempted to foresee a future that looks a lot like the daydreams in your millennium issue.

Architecture has little to do with technical possibilities that may prove to be impractical. It has to do with Vitruvian propriety, common sense, and craftsmanship.

After 40 years of practice, I have come to realize that architects are not saviors of the human condition. We are more like valets—we want to make sure our employers look their best within their means. Jeeves I am, I am not Albert Schweitzer.
—*James A. Gresham, FAIA*
Tucson

Corrections

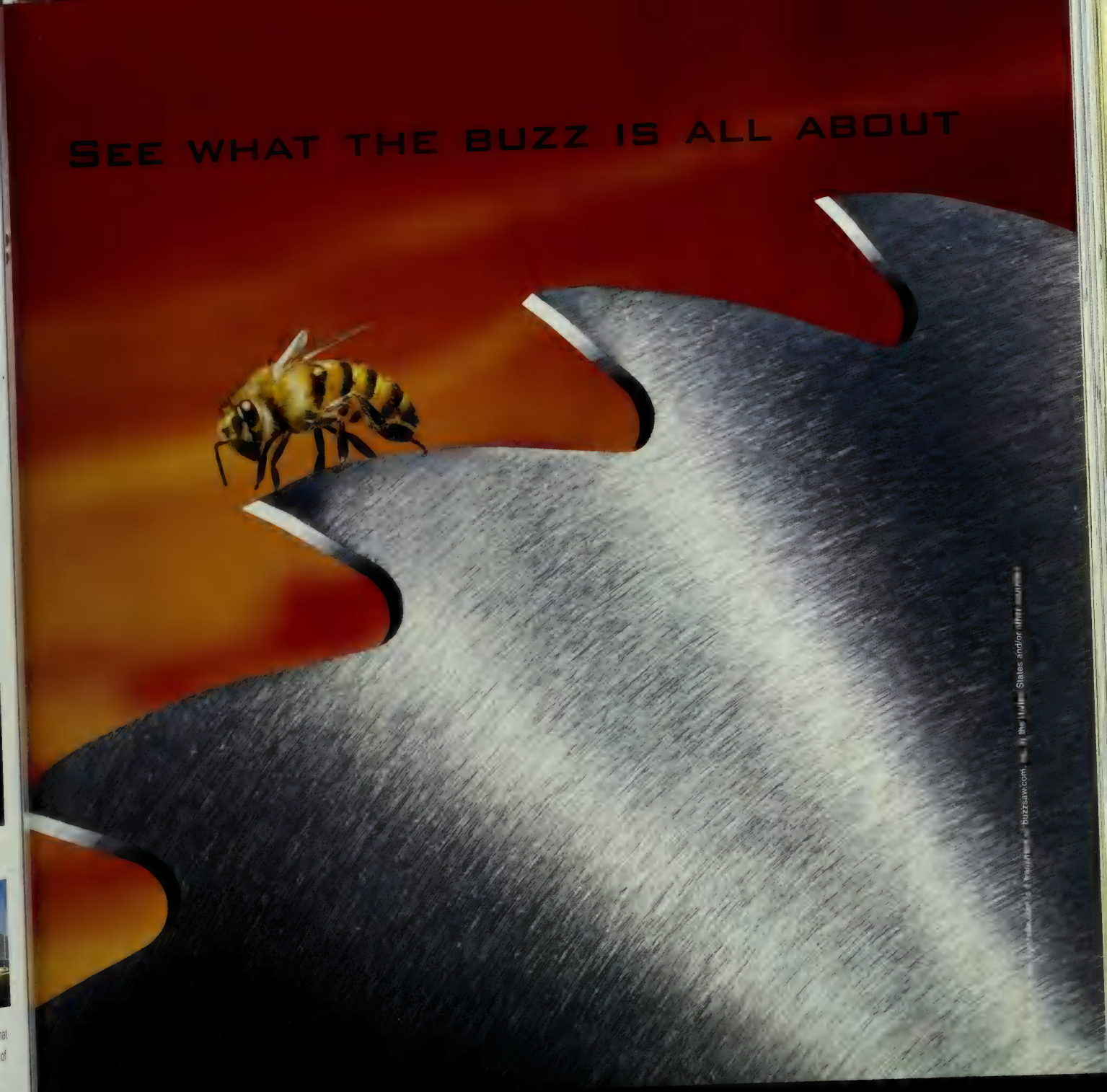
Plans for Reiser + Umemoto's prototypical airport for New York City were printed incorrectly on page 121 of the December 1999 issue. In December's Product Reports [page 167], a description of Pilkington LOF's Arctic Blue float glass was mistakenly pictured with the company's new Solar E solar control glass. The pictured project (above right) uses Pilkington's Arctic Blue Eclipse reflective and tinted float glass. The December article about Jim Cutler's residential detailing



[page 170] should have stated that Cutler used 280,000 board feet of salvage lumber. In the January 2000 issue, Jury Alvarez and Cono DiZeo of Ian Schrager Hotels were omitted from credits for St Martins Lane Hotel [page 91]. They were design coordinator and project manager, respectively. ■

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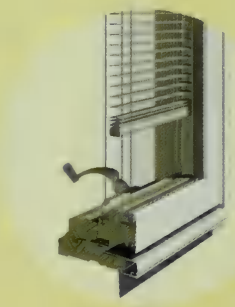
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Record News

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NEW PIANO TOWER TO SHINE IN SYDNEY FOR THE OLYMPICS, WHILE FOSTER WAITS IN WINGS





Just in time for the Olympics this summer, Sydney will have a new building to help define its skyline: Renzo Piano's tallest high-rise to date (above), a 41-story office tower the architect says will "wave to" the Sydney Opera House a half-mile away. Lord Norman Foster, HON. FAIA, also plans to contribute to Sydney's new look with an office tower (top, center building), though the project is on hold.

Piano's tower, in a prime position overlooking the Sydney Harbour and Botanic Gardens, is part of a $440 million development that also includes a Piano-designed 18-story luxury residential tower. The taller tower has almond-shape floor plates that increase in size with each floor. Wrapped in a curved skin of fritted, low-iron glass, the tower will be less opaque toward the ends and top, making the building visually dematerialize. Each floor will have a 430-square-foot winter garden on its north and south corners, with glass louvers that open to let in the breezes.

The lower tower, with 62 units, will also feature glass louvers and winter-garden spaces. Linking the two buildings will be a plaza covered by a column-free, glass canopy with a web of stainless-steel cable—a kind of "spiderweb," says Piano.

Foster's foray

Close by, a high-rise designed by Lord Norman Foster, in conjunction with the Sydney firm Hassell Architects, has been put on hold by its new owner, Principal, following the acquisition of the former client, BT Funds Management. When work starts again, says architect Ken Maher of Hassell, it will be the next in a global lineup of sustainable towers designed by Foster.

Air drawn in through glazed roof terraces will feed into the tower and channel through voids or atriums that run the length of the building, instead of using conventional ducts. This system will lower energy costs. The tower will step down in an arc, somewhat like the nearby Harbour Bridge, and an illuminated roof garden will glow as a beacon in the night sky.

Anne Susskind

THE AIA'S HONOR ROLL The AIA has recognized 38 projects with its 2000 Honor Awards, to be doled out at the AIA National Convention in Philadelphia in May. Skidmore, Owings & Merrill captured three awards in the regional and urban design category, while Weiss/Manfredi Architects, Shelton, Mindel & Associates, and Richard Meier & Partners garnered two awards apiece. In addition, Meier's Smith House, completed in 1967 in Darien, Conn., earned the Twenty-five Year award. The Topaz Medallion, for contributions to architectural education, will go to Alan Balfour, dean and professor of architecture at Rensselaer Polytechnic Institute. (In December, the AIA announced that Ricardo Legorreta will receive the Gold Medal and Gensler the Firm of the Year Award).

This year's honor awards for architecture will go to the Kaufmann House Restoration by Marmol and Radziner Architects; Neugebauer House and the Getty Center by Richard Meier & Partners; Olympia Fields Park and Community Center and Women"s Memorial and Education Center by Weiss/Manfredi Architects; Massachusetts Museum of Contemporary Art by Bruner/Cott & Associates; Methow Valley Cabin by James Cutler Architects; the Hill County Jacal shelter in Texas by Lake/Flato Architects; Le Fresnoy National Studio for Contemporary Arts by Bernard Tschumi Architects; the U.S. Port of Entry by the Miller/Hull Partnership; Mashantucket Pequot Museum by Polshek Partnership Architects; desert housing for low-income seniors by Studio E Architects; Center Street Park and Ride by Herbert Lewis Kruse Blunck Architecture; Grand Central Terminal restoration by Beyer Blinder Belle; and Kuala Lumpur City Centre, Phase I, by Cesar Pelli & Associates.

The interior architecture awards will go to the San Francisco City Hall Improvement Project by Heller · Manus Architects (on behalf of a joint venture); SHR Perceptual Management Workspace by Morphosis Architects; Helmut Lang Flagship Retail Boutique by Gluckman Mayner Architects; Long Meadow Ranch Winery by Turnbull Griffin Haesloop; the preservation of Farnsworth House by Lohan Associates; Seiji Ozawa Hall at Tanglewood by William Rawn Associates; St. Jean Vianney Catholic Church Sanctuary by Trahan Architects; Iwataya Passage by WalkerGroup/CNI; Colleen B. Rosenblat Jewelry Showroom by Gabellini Associates; Ocean Liner Dining Room and Lounge and Fifth Avenue Duplex by Shelton, Mindel & Associates Architects; Greenwell Goetz offices by Greenwell Goetz Architects; Ackerman McQueen Advertising Executive Offices and Video Conferencing by Elliott + Associates Architects.

The AIA will also hand out 10 awards for regional and urban design.



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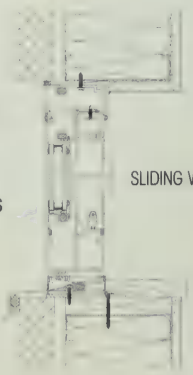
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CIRCLE 14 ON INQUIRY CARD



TORONTO'S CITYPLACE CLAIMS A VACANT SITE

A nine-hole golf course with a driving range and clubhouse at the edge of downtown Toronto's financial district? This conjunction of commerce and caddies may seem implausible, but the course will open this spring to promote the $1.4 billion, 5.4 million-square-foot CityPlace mixed-use development, recently begun on former railyards.

The public course, which isn't permanent, is meant to generate publicity for the project, whose first 28- and 32-story towers, with a total of 642 apartments, should reach completion next year. As many as 6,000 apartments in 20 towers, some with low-rise and townhouse condos, are planned for the 44-acre vacant site over the next 10 years.

Marc Hewitt, a landscape architect, urban designer, and senior vice president of Concord Adex Developments, the project's developer, says some of the architectural features typical of high-rise condominium towers built on North America's West Coast have been adapted to the Toronto market. Glass and steel high-rise condominiums are popular in Vancouver, whereas masonry or precast concrete often clads Toronto's high-rise condos.

CityPlace will employ the western aesthetic. The two inaugural towers (left) were designed by Page + Steele Architects/Planners of Toronto. Sol Wassermuhl, the firm's president, says the design "had to make a bold statement to be noticed, and in a modern vocabulary, because of the proximity to SkyDome and CN Tower, with no historical context in the neighborhood." The elliptical tinted glass-and-aluminum towers will overlook the lakefront and share a podium, providing street-level retail and a recreational/fitness center on the second floor.

Hewitt says the next two towers—28 and 35 stories, respectively, with up to 650 units—will be designed by Architects Alliance of Toronto (not the U.S. practice with the same name). About half the sprawling CityPlace site has been set aside for parks, bike paths, jogging trails, and other open spaces, as well as for an elementary school, community center, and two day-care centers. *Albert Warson*

ANOTHER SCENE FROM THE DEMOLITION OF DETROIT: AN ALBERT KAHN PLANT FROM 1903 BITES THE DUST

The Packard Plant, designed by Albert Kahn in 1903, was the first reinforced-concrete factory in Detroit and the model for Ford's groundbreaking Highland Park Plant. Early on, it was celebrated for inaugurating a new style of factory that improved both efficiency and working conditions. Much later, in 1970, it was still being lauded: the Detroit Institute of the Arts' house publication praised the "bright, clean and cheerful aspects of the different departments."

Now, the Packard Plant is disappearing portion by portion, a casualty of city demolition of decrepit structures abandoned in the wake of Detroit's glory days. The space where it stood (top, the factory with one wing destroyed) holds few signs of its long history—the plant flourished until World War II, when Rolls Royce airplane engines were manufactured there, and then into the 1950s, though it stopped producing automobiles in 1957. Other tenants arrived, and, until recently, the plant hosted more than 100 small businesses—but the city had other ideas and began tearing it down. Demolition of the 3.5 million-square-foot facility could cost the government around $15 million. *Camilo Jose Vergara*





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CIRCLE 15 ON INQUIRY CARD

NORDIC EMBASSIES STAY CALM IN BUSY BERLIN

In the heart of rapidly changing Berlin, next to its central park called the Tiergarten, stands a new oasis of Scandinavian serenity. Coinciding with the reconsolidation of the German government in the country's historic capital, the five Nordic countries have banded together to share a complex of embassies for the first time anywhere. The result is a grouping of structures that express the unique characteristics of the host countries while blending into a cohesive whole.

The process began when the five countries—Denmark, Finland, Iceland, Norway, and Sweden—launched a competition for a master plan for their chosen site. The Austrian/Finnish team of Alfred Berger and Tiina Parkkinen got the job with a design that ties the complex together by wrapping a wall of 4,000 copper louvers around the exterior, providing a connecting skin for the structures within. The wall curves through the site skirting clusters of existing trees. Berger and Parkkinen also designed the shared reception and exhibition building, the Faelleshuset. The individual embassies were then designed by an architect based in each country, using native materials when feasible.

On entering the complex via a gate near the Faelleshuset, which was inaugurated in late October, visitors encounter the Finnish embassy, designed by VIIVA of Helsinki. A forest of wooden slats forms a minimalist pattern over the facade. Next to the Finnish building is a shallow pool of water that marks the transition to the Swedish Embassy, designed by Wingårdh of Göteborg. Inside, a spiral staircase anchors one side of a soaring all-wood atrium where diplomats meet [illegible] and balc[illegible]







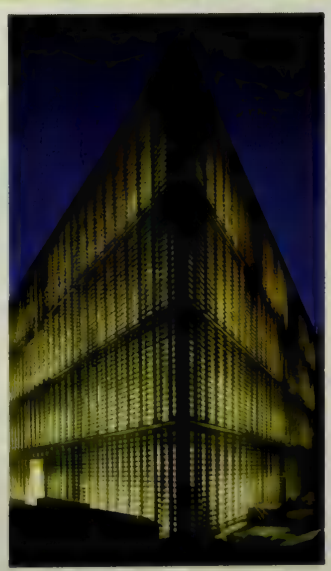


Across the courtyard, in the middle of the complex, stands the Norwegian embassy, by Architect Snøhetta of Oslo. A monumental, 120-ton slab of gray Norwegian granite on the main facade provides a weighty focal point for the complex. As with the other embassies, the structure's corridors, lobbies, and conference areas were conceived to maximize daylight and views, while a garden atrium at the north end provides a contemplative environment. The east and west facades are glazed.

In the corner sits the Icelandic Embassy, designed by Architekt Palmar Kristmundsson of Reykjavik—smaller than the rest, as befits the country's population, but made solid by a granite facade.

A stroll by the wood and stainless steel-clad Danish embassy, by Architekten Nielsen, Nielsen & Nielsen of Aarhus, leads back through the gate next to the Faelleshuset and into Berlin's forest of clamoring construction sites.

Soren Larson



Top row: The Icelandic and Danish embassies. Middle: The Swedish embassy, with its lower-level pool that separates it from the Finnish embassy, and the Norwegian embassy, between the Icelandic and Swedish embassies. Bottom: The Finnish embassy.

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Circle No. 16

A SUNDIAL IN ST. CROIX MARKS THE MILLENNIUM

Point Udall, an isolated promontory on St. Croix, is the easternmost land in the territorial U.S. Historically, the spot was seldom visited, except for occasional sightseers who drove up a dusty road to enjoy the point's views of the Caribbean. Yet the point's geography gave it a millennial distinction as the first U.S. land to see the sunrise on January 1, and last year, the U.S. Virgin Islands' government, with the local AIA chapter, decided to hold a competition for architects practicing in the Virgin Islands to design a monument for the site and the moment.

The winning design came from C. William Rich, AIA, an architect from the neighboring island of St. John, who fashioned a sundial that bears a permanent mark indicating the shadow cast at the first dawn of the new millennium. Four 18-foot-high triangular stone piers surround the sundial's circular center and abstractly suggest the Latin numerals for 2,000: MM. In the center, a bronze finial, also 18 feet tall, works as the shadow pole. On the periphery of the podium, beyond the center piers, are four bronze pins designating north, south, magnetic north, and the point of the sun's azimuth at 6:52 A.M. on January 1, 2000.

The monument owes its existence to the guidance of a Virgin Islands public works official, Aloy Nielsen, who saw it through a tangled bureaucracy and two hurricanes that swept devastatingly across St. Croix. As for the architect, Rich says he was trying to make a "small statement" with his sundial, rather than an overpowering design. "To me," he says, "it is significant that time and the passing of time have always been measured by the sun."

Beth Dunlop





CHATTANOOGA, ONCE A HEAVILY POLLUTED CITY, TURNS TO GREEN DESIGN FOR NEW CENTER

Chattanooga is going green. The city has picked a joint venture team of New York City's Croxton Collaborative—known for sustainable architecture—and Artec of Chattanooga to create a sustainable design for the city's new Development Resource Center. The new office building will consolidate the majority of city and county government agencies and divisions related to the built environment, including planners, architects, and engineers.

The 85,000-square-foot structure, slated for completion in 2001, will rise in an aging industrial zone that the city has targeted for revitalization. The architects will promote pedestrian traffic by incorporating 5,000 square feet of retail space into the site, while the building itself will have a number of environmentally conscious features. Customized daylighting controls will be installed, bringing direct sunbeams into some areas and more low-impact, diffused lighting into others. Apertures in public and work spaces will be coordinated to conserve energy and create varied environments. The "smart" landscaping will enable rainwater recycling.

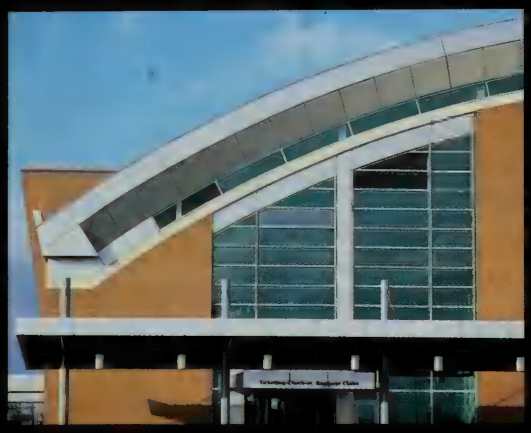
Chattanooga was infamous 30 years ago as one of America's most polluted cities, according to Croxton. Now, it is making amends. *S. L.*

GOVERNOR'S ISLAND: A PLAN AT LAST? **In 1995, President Clinton offered Governor's Island, which the federal government had used for military purposes since 1755, to New York City and New York State for $1. The catch: the city and state had to come up with a joint redevelopment plan for the island, including provisions for preservation and public use, and have Congress approve it before the exchange could take place.**

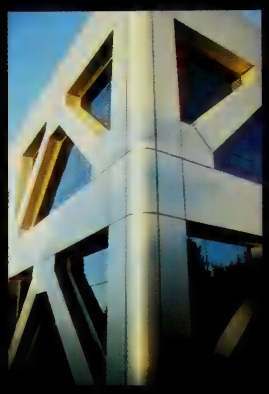
Now, city and state officials think they have the desired plan for the 172-acre island in a prime spot in New York Harbor off the southern tip of Manhattan. The ideas, presented by Mayor Giuliani and Governor Pataki at a January press conference in New York City, include ballfields and tennis courts; small museums for art, ecology, and military history; an inexpensive motel; and artists' studios. The entire 2-mile circumference would be circuited by a public esplanade. The island's southern end would be the site of the proposed art and ecology museums and playing fields. The military history museum is proposed for the north side, an area dotted with historic fortifications and mansions protected by the federal government. No permanent residents will occupy the island.

The scheme has to generate enough income to cover the estimated $22 million annual maintenance budget and some of the estimated $150 million that the state and city will contribute to the projected $350 million development cost. To that end, many of the biggest and most important existing buildings would be used for a conference center, with retail outlets nearby. Architects have yet to be chosen for the projects, and developer bids have yet to be proposed—though the Guggenheim Museum is rumored to be interested in building a new museum on the island. The biggest hurdle facing the plan is to persuade Congress of its worth. When asked if the $1 offer was still on the table, Pataki said he wasn't sure, quickly adding, "But we'll take it!" ***S. L.***





A Panel Discussion



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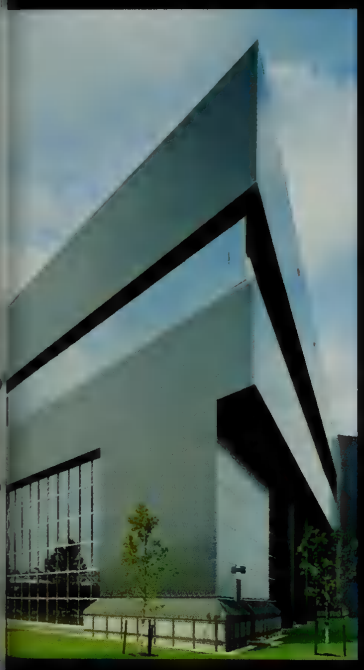
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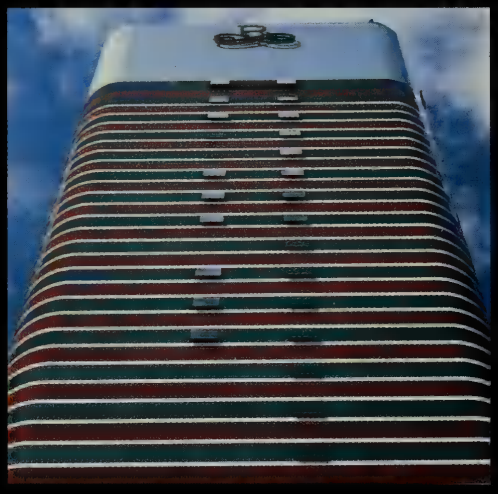
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CIRCLE 11 ON INQUIRY CARD

VANCOUVER FIRM TRIES NATIVE COLLABORATION



Silence does not imply consent. This was one of several design lessons learned by Acton Johnson Ostry Architects of Vancouver when designing community structures for two American Indian tribes in British Columbia, the Skidegate and the Mount Currie.

An elementary school for the Skidegate (above), serving both native and nonnative children, reached completion in September, followed in December by a day-care and health center for the Mount Currie tribe. The firm's Russell Acton describes the design process as "unusually long and collaborative—there was lots of back and forth. We took their traditional expression and then expressed it in a contemporary medium." Extensive research was required to understand the American Indians' background, traditional building types, relationship to the land, and spiritual values. And because the elders are greatly revered, their input was considered invaluable.

Frequently, the tribes were silent in their response to a design proposal, but according to Acton, their silence did not necessarily signify approval. Thus, the architects had to continually question the group to gain final consent.

Final design for each new building responded to both tribes' desire for cedar as a prominent material. The 30,000-square-foot Skidegate school features cedar for ceilings, as well as structural and partition wall finishes. Roughly turned cedar columns throughout the building support framing. The classroom corridor, with an exposed "vertebral" roof structure, is crowned by a dramatic skylight. The daylit corridor has benches for small group instruction. Students and elders from the community are encouraged to gather here and use the adjacent Haida Studies Room, where they can practice traditional teaching methods.

The 7,400-square-foot Mount Currie Day Care and Health Center had a more limited budget than Skidegate, but the architects were able to apply the idea of a structural wood-carved interior space, based on the tribe's traditional "pit house," which uses a wooden pole framework. Wood was critical to maintaining the visual integrity of the building, says Acton. "If the same thing was done with gypsum board, it would be like a shopping mall," he adds. "You need the wood to get the traditional idea through." *John Gracey*

NEW HOME FOR LIBERTY BELL RINGS CLEAR AMID REVAMPED INDEPENDENCE MALL PROJECTS



The new Independence Mall is taking shape. The design for the last of the major new projects in Philadelphia's historic area, Bohlin Cywinski Jackson's new home for the Liberty Bell, was revealed in January, and construction should begin in August.

Philadelphia first assembled the three-block tract that became Independence Mall a half century ago [illegible] struggled to find a proper housing for the Liberty Bell, which attracts more than 1.6 million visitors a year. The architects have proposed a new $11.2 million light-filled building with a view of Independence Hall, to be constructed along Sixth Street between Market and Chestnut Streets. The glass, steel, granite, brick, and wood complex will include the bell's chamber, an area for exhibits and talks, and a shaded outdoor interpretive area. As in the present location, visitors will be able to touch the bell; they will also be able to see it through the glass even when the building is closed.

The $200 million renovation of the three-block Independence Mall includes three other major projects. A design by Pei Cobb Freed & Partners is already in place for the new National Constitution Center, which will celebrate the U.S. Constitution. Also in the works are the $32.3 million, nearly block-long Gateway Visitor Center and the Independence Park Institute, both designed by Boston firm Kallmann, McKinnell & Wood. *S.L.*

BUSY IN BUDAPEST AND BEYOND **Unlike the majority of Hungarian architecture firms, Aula-Planconsult Kft. is finding extensive work outside the country's borders, and more is in the offing. The key: the Budapest firm's biggest client is German development giant Mahler Project International; Aula-Planconsult is designing for Mahler in Poland, the Czech Republic, Romania, and the Canary Islands, as well as in Hungary.**

One of the first major development projects in Poland following the collapse of Communism, Aula-Planconsult's 950,000-square-foot Ochota Office Park for Mahler stands in the heart of Warsaw's commercial district. "Before, there was just open ground and a few houses," says János Bordi, Aula-Planconsult's general director. "Mahler led the way; now, others are building in the area."

Construction began in 1996 and three of the complex's four buildings have been completed and are occupied. Costs so far are estimated at $60 million. The first three buildings are stepped, with four, five, and six levels, respectively, while the fourth structure will include 140,000 square feet on eight floors and two levels of underground parking. All four will be connected by a common ground floor and a pedestrian walkway. The main pedestrian area will have restaurants, a fitness center, and an atrium over an interior court. Bridges will link the upper levels.

"The architecture," says Bordi, "is a very simple modern style with a Scandinavian influence: clean lines, correct geometrical forms, and simple materials such as stone, glass, stainless steel, and plaster. Stone is used on the ground-level elevations and plaster on the upper levels." The fourth building, he continues, "is interesting because of its curved form. It will feature structural glazing on the main elevation and wrap around a square grid of interconnected reinforced-concrete columns."

Also in Warsaw, Aula-Planconsult designed the approximately $18.5 million, 150,000-square-foot, eight-story Wspolna Office Building now under construction. ***Carl Kovac***



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EXERTING ITS STATUS, KUWAIT GOES COASTAL

Kuwait apparently has no shortage of deep-pocketed clients, including its government. Two massive new projects that take advantage of the country's dramatic 50-mile coastline exemplify the extravagance.

Kuwait's Archicenter/JQE has designed a 1.8 million-square-foot government complex (below left) in Kuwait City to house the offices of the Amir (the country's ruler), Crown Prince, and Prime Minister, as well as the Council of Ministers' buildings. The white, reinforced-concrete structures feature highly decorative facades in the manner of traditional Islamic architecture. Two spines connect the three main building complexes and provide protected access for pedestrians, while a new outer breakwater creates a lagoon that helps fortify the complex against any threat arriving via the Persian Gulf.

Meanwhile, Cambridge Seven Associates (C7A) won a competition late last year to design a new public entertainment and shopping center on the 1.3-mile Feheheel waterfront, south of Kuwait City. The C7A design (below right) includes a beachfront framed by palm-tree-shaded promenades and punctuated by piers that jut out perpendicular to the coastline. The twin piers will have a 70-meter Ferris wheel at their terminus and will feature markets, cinemas, restaurants, and retail shops. According to C7A, the design includes many traditional Islamic elements—arcades, entry towers, and delicate screens—though contemporary forms and material were also used. C7A knows the territory—the firm has also designed two large science centers in Kuwait. *S. L.*







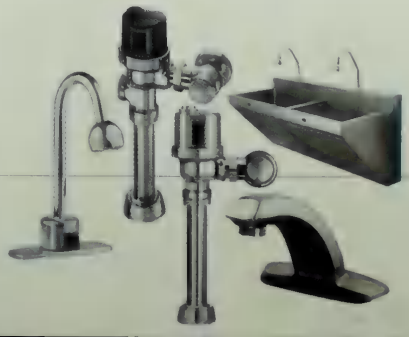


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News Briefs

Penn's big plans After a limited competition to generate proposals for renovating Hamilton Village, four square blocks of student housing (right), the University of Pennsylvania has picked Patkau Architects, of Vancouver, and Kieran, Timberlake & Harris, of Philadelphia, to contribute designs for the site's northwest quadrant. Patkau is designing 700 new accommodations in low- and mid-rise buildngs, organized around courtyards. In addition, the firm will create a "visual arts hub," supporting the practice and study of visual arts, and retail and office space on nearby 40th Street. Kieran, Timberlake & Harris will renovate the high-rise Hamilton College House by dividing the tower into two facilities, with separate elevators and lobbies, and adding new public space with a two- or three-story "skirt" around the base. Penn hopes to start construction in 2001.

Canadian pride The Royal Architectural Institute of Canada has launched a competition that invites architects to redesign a prime, three-block area in the center of Ottawa facing the national parliament buildings. The middle block has several vacant spaces, and the organizers are hoping to generate innovative ideas that will celebrate the spot's importance.

Library laments Correcting the dysfunctional layout of San Francisco's central library may cost an estimated $28 million, according to a new report commissioned by the city. The six-story library features a full-height atrium that complicates using and getting around the 377,000-square-foot facility, the report says. Completed in 1996 with a design by Pei Cobb Freed & Partners in association with San Francisco-based Simon Martin-Vegue Winkelstein Moris, "the building has been well respected as a piece of civic architecture, but it has met with negative criticism with regard to accommodating the typical library functions of a large central city library," the report says. Recommendations include creating storage space next door by renovating a one-story, underground exhibit hall built in 1956 and closed in 1994. The report also calls for spending another $17.7 million in the central library itself on various interior design, mechanical, and structural reconfigurations. What happens with the recommendations will depend on the city's Library Commission.

Air time Arcwelder Films in Los Angeles has launched a series of architecturally related documentaries on the Discovery Channel. The first of three films—"Skyscrapers: Going Up"—premiered in January, while "Bridges: Reaching Out" and "Tunnels: Digging In" will make their debuts this month and in March, respectively.

Modernist monuments America's National Historic Landmarks, typically buildings from the earliest days of the



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News Briefs

republic, may soon include some very modern-looking structures. A group of buildings in Columbus, Ind.—where the Cummins Engine Foundation has been boosting innovative architecture since 1957—is under evaluation for landmark status by the National Historic Landmarks division of the National Park Service. The area includes buildings designed by I. M. Pei, FAIA, Eliel and Eero Saarinen, Kevin Roche, FAIA, Robert Venturi, FAIA, Cesar Pelli, FAIA, and a long list of other notables.

Friendly design The Friends of Photography Gallery in San Francisco, which includes the Ansel Adams Center, will open later this year in a new location designed by San Francisco's Pfau Architecture. The new structure, which will provide access to the neighboring SFMOMA, will have a pristine look of white walls and hardwood floors and will have wood-and-metal shelving systems that stretch from floor to ceiling.

Earth first at Oberlin Work is complete on the Adam Joseph Lewis Center for Environmental Studies at Oberlin College. The center, designed by the Charlottesville, Va., firm William McDonough + Partners, is meant to be a model of sustainability and serve as a practical teaching tool for students. The building and landscape were designed to illuminate underlying lessons about the impact of human beings on the earth, the elimination of waste, and the environmental costs of energy consumption. The 13,500-square-foot complex includes a two-story building with classrooms and offices and a smaller structure with an auditorium and a "Living Machine," which filters the building's waste water through a series of marshlike ecosystems. The main building's north wall is insulated by an earth berm planted with fruit trees, while a pond and wetlands filter storm-water runoff.

Not a bridge too far A federal appeals court has rejected opponents' objections to a new Woodrow Wilson Bridge near Washington, D.C., and said federal officials adequately followed environmental and other statutes in their reviews of the $1.9 billion project. The decision reverses an April ruling by a federal district court. The case centers on plans to replace the existing Wilson bridge, a six-lane bascule bridge constructed in 1961 that is straining under the more than 190,000 vehicles it carries each day. A study has found that, by about 2004, the existing bridge will require a major overhaul or a ban on heavy vehicles. The replacement plan favored by federal and state officials calls for two new 6,000-foot-long bascule bridges, each with five lanes, plus room for two future lanes for high-occupancy vehicles or light rail.



Oberlin's center for environmental studies.

Hello, Cleveland The Arcade, a shopping and business center in Cleveland since opening in 1890 and the first Cleveland building to be placed on the National Historic Register, will soon have a new life—as a Hyatt Regency. The structure's two towers and the top three floors of the atrium concourse will be a luxury hotel, while the first two floors of the concourse will host a food court and retail shops. The hotel, designed by architect Johnathan Sandvick, AIA, is expected to open in 2001. ■





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When the University of Notre Dame decided to replace the windows in two of the more historic buildings on its storied campus, all the major manufacturers wanted the job. But as they learned more about the size and scope of the project, the list began to dwindle. Since both buildings are on the National Register of Historic Places, Notre Dame wanted windows with wood interiors that matched the appearance and profile of the originals. To minimize maintenance, another demand was aluminum clad exteriors. Marvin Windows and Doors emerged victorious. And designed and built 310 windows for the project, not one of which was a standard size. Not only that, but the casings were factory applied and a custom color for the exterior cladding was developed to replicate the 100 year-old originals. If you have a challenging commercial project, contact the company that has a reputation for winning the tough ones.



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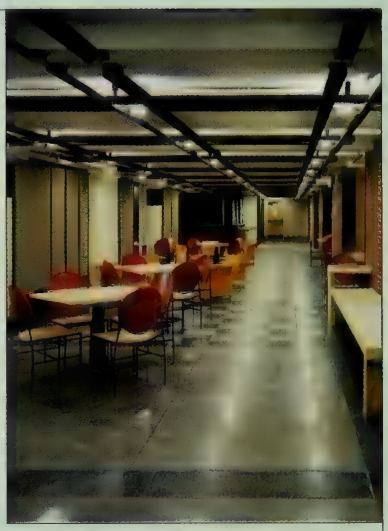
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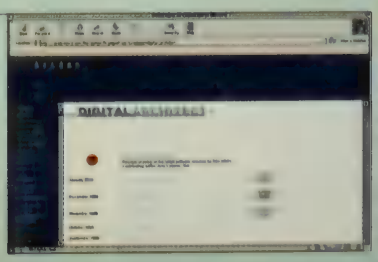


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Fearing runaway sprawl, Silicon Valley heads downtown

Correspondent's File

By Eric C. Y. Fang, AIA

Driving down Route 101 or Sand Hill Road, two of the main drags in Silicon Valley, it's hard to tell you're in the technology capital of the world. With its jumble of strip centers, parking lots, and tile-roofed office parks, the region—properly known as the Santa Clara Valley—looks much like any other California suburban landscape.

With $1 billion of venture capital per month flowing into the area and land prices quadrupling in the late 1990s, however, this 50-mile-long strip running south along the San Francisco peninsula between the Santa Cruz Mountains and the Diablo Range is undergoing extensive change.

The local press has naturally looked to the valley's research and development campuses for tangible built expression of the hype surrounding computer companies like Intel, Cisco, and Netscape. Indeed, recent projects, such as those by San Francisco's STUDIOS for 3Com, Silicon Graphics, and Excite@home, have given Silicon Valley R&D campuses their own sense of style.

Nevertheless, a broader transformation is taking place, one that involves regional planning, transit initiatives, and a renewed focus on downtown areas. These strategies promise to alter the valley's landscape much as the influx of industry after World War II transformed the citrus groves and canneries into a vast carpet of suburban developments and tilt-up industrial buildings.

Nowhere is this change more evident than in San Jose, a city of more than 900,000 people that has cleverly fashioned itself the capital of Silicon Valley. Although historically it was the commercial center of the Santa Clara Valley, San Jose's downtown was decimated by insensitive urban renewal, massive freeway construction, and sprawling residential development after World War II.

A fresh start

In the 1980s, Mayor Tom McEnery appointed architect Frank Taylor to bring new life to the San Jose Redevelopment Agency, known primarily as the perpetrator of urban renewal. Taylor rebuilt the agency into a powerhouse, complete with a 10-person urban design studio, but he still faced many challenges. San Jose has had to contend with a pair of stifling physical constraints: the proximity of the San Jose International Airport, which limits buildings to 27 stories, and a high water table, which effectively eliminates underground parking. Because of the height restriction and the enormous parking podiums, the cost of downtown commercial development has been prohibitive, as the redevelopment agency's Jeff Oberdorfer explains.

A key breakthrough for the agency under its new regime was to merge the city's redevelopment areas into one discrete entity. As a result, the downtown would benefit from tax revenues generated by other locales, most notably the Rincon de los Esteros industrial redevelopment area to the north. The success of Rincon, dubbed the "Golden Triangle" because of its many high-tech companies, ensured a revenue stream of about $90 million a year into downtown San Jose.

With its funding scheme in order, the redevelopment agency concentrated on the city's cultural and institutional infrastructure. The strategy bore fruit by the late '80s with the construction of the San Jose Museum of Art, designed by Skidmore, Owings & Merrill's San Francisco office; the Children's Discovery Museum, by Ricardo Legorreta, HON. FAIA; a convention center by Mitchell/Giurgola; and a new arena. More recent projects, such as the iconoclastic steel-clad Repertory Theatre designed by now-disbanded Holt Hinshaw Pfau & Jones, the recently opened Biblioteca Latino Americana by Steven Erhlich Architects, and the blue-domed Tech Museum by Legorreta—perhaps the first monument to Silicon Valley's technological culture—have revealed the agency's predilection for innovative, contemporary design and its goal to address the city's Hispanic heritage.



San Jose, which calls itself the capital of Silicon Valley, has tried hard to draw residents and businesses back downtown.

Most important at present is the agency's initiative to revitalize the downtown civic center. The strategy has been guided by an urban design framework developed

Eric C. Y. Fang lived in San Francisco for nine years before moving to New York City to be an urban designer and architect at Beyer Blinder Belle.

by Sasaki Associates' Marin County office that calls for incremental growth of a seven-block civic district through a series of infill projects organized around a linked public framework of arcades, plazas, and courtyards. The first buildings in this plan will be a symphony hall, designed by SOM San Francisco, the Horace Mann School by Moore Ruble Yudell, and a public library by Gunnar Birkerts, being developed jointly with San Jose State University.

A new city hall by Richard Meier & Partners will anchor the revitalized civic center—eventually. Meier's preliminary design for the building, scheduled to open in 2003, features a 16-story tower sitting above a double-height arcade and a sculptural city council chamber. Despite efforts by Meier to convince the community of his design's worth, the concept has been roundly criticized and was recently ridiculed by the *San Jose Mercury News* as a "cold, semi-futuristic spaceport." Last fall, Mayor Ron Gonzalez ordered the firm back to the drawing board for changes.

The redevelopment agency has also aggressively promoted the construction of housing units downtown, for which the agency has drawn on the talents of notable San Francisco housing designers: Projects like 101 San Fernando by Daniel Solomon and Paseo Padre by Bruce Ross of Backen Arrigoni and Ross are remaking the character of the city's downtown residential neighborhoods from single-family bungalows to more urban-scaled four- and five-story complexes organized around raised courtyards.

Despite the progress, all is not well with the redevelopment agency, which is receiving mounting criticism from preservationists and affordable-housing advocates. With the state legislature debating the possible ex[illegible] of the agency's funding authority and Taylor's retirement last summer, the golden era may be waning.

Outside San Jose, tax revenues generated by the surge in high-tech development have been harnessed by several smaller cities to revitalize once struggling downtowns. In Mountain View, industrial land formerly occupied by defense contractors is being transformed into R&D parks and residential developments, while the city has built a series of downtown public buildings, including a city hall by the late William Turnbull, a public library, and urban-infill housing projects. Meanwhile, in Palo Alto, the converted industrial buildings in the area south of Forrest Avenue (known, of course, as SOFA) have become favorites of hip product design firms.

The flip side of Silicon Valley's success is an imbalance between jobs and housing that has caused housing prices to spiral out of control. While residential developments continue to sprawl farther to the south and the east, increased land costs and worsening traffic have spurred cities in the valley to try different approaches.

Transit tactics

As a result, transit stations have become focal points for significant residential development. The Santa Clara Valley Transportation Agency has initiated a series of developments that incorporate a mix of uses and densities, creating a walkable, villagelike environment. Several of the smaller cities located along Caltrain, the commuter rail line linking San Jose and San Francisco, have followed suit.

These "transit-oriented developments" are designed to get people off the roads and—for the first time—onto mass transit. Two projects by Peter Calthorpe offer a glimpse of this new suburban future. The Crossings, 400 housing units on the site of a failing strip center, was designed to create easy pedestrian access to the neighboring Caltrain station and supermarket. Calthorpe's plan for Bay Meadows, on the site of an old racetrack in San Carlos, combines corporate campus housing and entertainment, mainly cinemas, in a pedestrian-oriented development linked to another Caltrain station.

Even a belated focus on transit may curtail the sprawl that is so deeply etched into Silicon Valley's landscape and lifestyle. Optimistic planners envision a network of villages linked by light rail. Critics of the plan fear that superimposing mass transit on an auto-oriented region may create what San Jose city planner Andrew Crabtree calls a Tokyo-style "transit sprawl." Still, the new urban plans are supported by environmentalists, business leaders, and regional government and nongovernment agencies—disparate antisprawl advocates and commuters fed up with traffic and rising housing costs. As the gold rush that has become Silicon Valley enters a new decade, the looming question is whether real change can be implemented before, as Daniel Solomon warns, "they strangle the goose that laid the golden egg." ■



Gunnar Birkerts' public library in San Jose will also be a university facility.



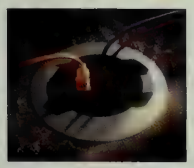
The Crossings provides easy access to a neighboring Caltrain station.



3COM's Santa Clara headquarters, designed by San Francisco's STUDIOS Architecture.

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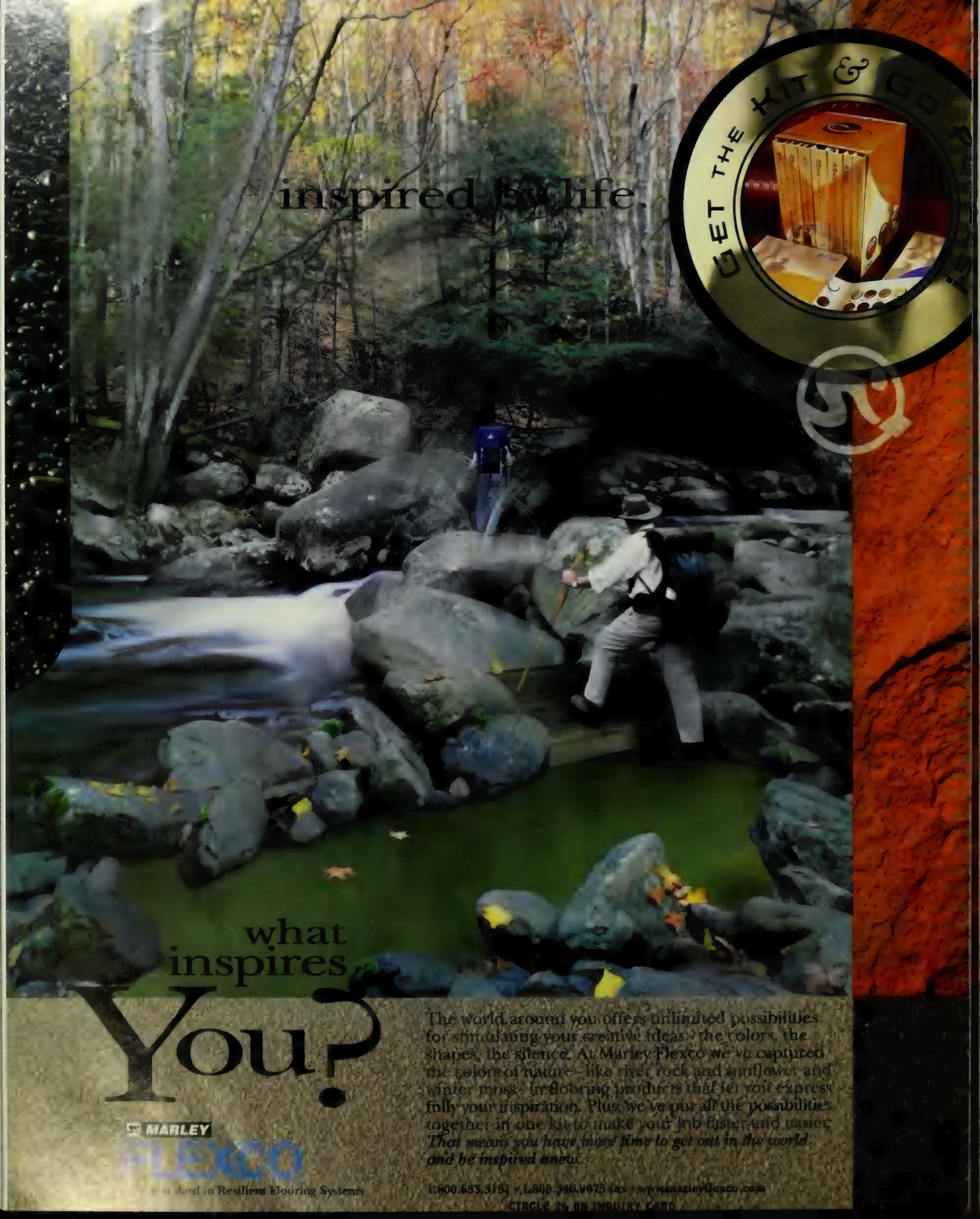
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Competitions: Opportunity or exploitation?

Practice Matters

By Andy Pressman, AIA

Architectural competitions have been likened to a double-edged sword. On one hand, they can provide architects with opportunities, enlighten the public, and advance the design dialogue. On the other, they can exploit architects from financial and intellectual property standpoints. One thing is clear: the stakes can be very high—big money and reputations are often at risk.

Opportunities

Dolf Schnebli, a Swiss architect, views competitions as "continuing education," because they offer the opportunity to experiment with new technologies and design options. Bruce Kuwabara, principal of the Toronto architecture firm KPMB, is also emphatic: "Competitions are an important way of expanding our thinking. We see them as part of our body of work." Indeed, architects can push the design envelope in competitions because they encourage an open and inventive approach to projects. Even losing schemes can enhance a firm's marketing portfolio, particularly in difficult economic cycles. Moreover, competitions provide a chance for small, evolving firms to have a shot at large-scale commissions.

Roger Schluntz, FAIA, a noted professional advisor for competitions, suggests that one of the biggest beneficiaries of design competitions is the public. The educational consequences of presentations, exhibits, and the media can be extraordinary. Schluntz says, "as a result of the increased awareness of the value of design and heightened expectations, both the profession and public can profit."

Regardless of the outcome, participating in competitions can benefit a firm. New York City-based Kohn Pedersen Fox (KPF) used a competition to pursue its first project in the health-care industry, an effort that earned a third-place award. Even though KPF didn't win, the partners were delighted; the experience increased the firm's knowledge of this market and positioned it for similar future projects.

In theory, competitions provide the possibility to secure commissions on pure merit. KPF's London office entered 30 competitions (and won a staggering 17) in its first four years, giving the firm an almost instant reputation and workload. Competitions in Europe tend to be more frequent, shorter in duration, and less costly than those in the States, thus minimizing the risks and increasing the potential return for the architect.

The down side

Still, all competitions involve some risk for the professional. The biggest problem, according to New River, Ariz.-based architect Will Bruder, FAIA, is politics. Jurors frequently have personal agendas. Bruder cites a competition in which he participated where all five finalists were either former students or employees of jurors. "How can jurors be objective under those circumstances? It's a travesty!" exclaims Bruder.

In the most egregious examples, clients or juries have chosen an architect before the competition begins. Architects have also charged that their ideas have been used even when they did not win. RECORD has received numerous complaints from architects who felt that their intellectual property had been appropriated without credit or remuneration.

For architects who don't win, the costs can be substantial. Even if an honorarium is given, it rarely covers all the architect's expenses. Michael Graves, FAIA, deems this "a hideous way to select an architect." Notwithstanding the aforementioned successes of his firm, KPF, Gene Kohn, FAIA, believes it's unfortunate that architects are eager to do competitions without a fee. He says these professionals are giving away their most valuable assets: creative ideas.

Because good buildings require the consensus of users and designers, competitions are further criticized because there is no dialogue between client and architect. Hugh Hardy, FAIA, of Hardy Holzman Pfeiffer Associates in New York City, believes the process is inherently flawed. Lacking "proper access to the client," he says, "an architect alone cannot represent all the values required for the best buildings." Schluntz suggests this may not always be the case: "Development of a detailed program for the competition should help distill the issues. After the architect is selected, the dialogue begins anew."

Recommendations

Entering competitions requires vigilance on the architects' part. Critical assessments of selection criteria and jury predisposition are essential to understanding the politics. The financial risks are too high if a firm has no chance to win.

The architect should also understand the competition's rules regarding intellectual property. Typically, the architect owns the "Instruments of Service" and grants the sponsor a nonexclusive license to publish and display submission drawings and models. Once ideas have been published and displayed, however, they can creep into the subconscious, making it difficult, if not impossible, to prove plagiarism. Having an agreement that binds the sponsor and each firm to the competition's schedule, requirements, and honorarium prior to the start of the competition is a must.

The very best competitions result in better designs than the RFQ process and provide ways for architects to excel based on talent alone. Poorly run competitions, on the other hand, can mire architects in a political muck, which can be costly and unnerving.

The notion of the architectural competition is analogous to a Shakespearean play. In addition to the rarefied layer of design excellence, there's an abundance of subtexts: power struggles, political agendas, and financial issues. Indeed, the Bard might have been "in love" with architectural competitions. ■

Andy Pressman, AIA, is associate professor of architecture at the University of New Mexico and leads his own architecture firm in Albuquerque.

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CIRCLE 27 ON INQUIRY CARD

Does the "starchitect" system promote good design?

Critique

By Cynthia Davidson

Architects are normally called in when one intends to build a beautiful building: this is what we may well affirm architecture consists of today . . . all the rest of architecture, other than ornamentation, is of so little importance and of so little glory for architects that few of them are proud of it.

—G. B. Piranesi, Parere su l'architettura *(1765)*

These days, hardly a week goes by without a mention of Frank O. Gehry, FAIA, in the mass media. In late June and July alone, for example, the *New York Times* ran four articles, respectively, in the metropolitan, arts, and home sections, describing Gehry's current work in Chicago; Spain; Washington, D.C.; and Panama. Each article was illustrated with a photograph of the architect, not of the architect's work, in effect equating Gehry's thoughtful, slightly rumpled visage with the already well-known, shiny image of his Guggenheim Museum in Bilbao.

This media attention, clearly owed to the fantastic image and related success of the Bilbao building and not to the unrealized designs of the new projects being reported, cannot hurt the career of Frank Gehry. Name or face recognition may even help him get the power table at a good restaurant. But, is celebrity good for architecture? And for the many in the profession who have disparaged the so-called "starchitects," can we argue that fame can also lead to good architecture?

I, for one—and I take myself to be in the minority—say yes to both questions. If the fame game is not played in architecture, then the profession is not engaged in contemporary life.

A celebrity culture

That celebrity drives the aesthetic and economic engines in America today is obvious to anyone who follows current events. Just recall the August launch of *Talk*, yet another celebrity magazine, only this time the editor, Tina Brown, is a celebrity herself. Or take last summer's show at the Museum of Modern Art in New York City, "Fame After Photography." Mounted in galleries more reminiscent of the celebrity-inspired Hard Rock Cafe than the midtown bastion of high culture, the exhibition featured images of celebrities—all made famous by the power of the pervasive image—in and on everything from newsreels to magazine covers to cereal boxes.

Nowhere in this popular show—which to the crush of viewers on a July morning appeared to be simply a trip down memory lane—was there a photograph of an architect. No Frank Lloyd Wright in his signature cape and porkpie hat; no Philip Johnson, FAIA, or I.M. Pei, FAIA, in their iconic owly glasses; not even Michael Graves, FAIA, hawking shoes or Target tea kettles. By comparison, "The Un-Private House," an architecture exhibit in the adjacent galleries, was sparsely populated that day, with most viewers gathered around an interactive image-producing dining-room table.

Architecture and architects may not have a history in the image banks of mass-market media, but as "Fame After Photography" curators Marvin Heiferman and Carole Kismaric write, "In the visual culture we live in, there's no relief from fame."

The image-driven media clearly has become the staple of the American cultural diet. The most powerful illustration of media's

Cynthia Davidson is editor of ANY *magazine and a series of books documenting the Anyone Project conferences.*



Known by the masses (left to right): Philip Johnson, FAIA, Frank O. Gehry, FAIA, and Richard Meier, FAIA.

increasing manufacture of and reliance on fame for its own sake was its coverage of John F. Kennedy Jr.'s death last July. As photographs and video clips of the young Kennedy were endlessly replayed across TV screens and tabloids, one realized that, given his relative youth, JFK Jr.'s primary contribution to society had been his celebrity status itself.

As Heiferman and Kismaric write, "Human achievement doesn't appear on schedule, but newspapers, television shows, movies, and magazines have to." In his life and in his death, JFK Jr. served the media's voracious need to fill air time and column inches.

A different animal

Architecture moves too slowly for media's schedule. It is seldom seen as media material unless a roof collapses, leaving a dramatic photo opportunity in its wake, or, in the case of the Guggenheim Bilbao, something extraordinarily different and beguilingly photogenic rises on the landscape.

Neither scenario, however, occurs with any frequency. As a result, such an occurrence brings a certain degree, unwanted or not, of fame to the architect involved. It is simply the media's—and society's—way of assigning blame and/or credit and a human face to an inanimate object. Yet architecture as a profession has seemed reluctant to claim a piece of media space or otherwise seek celebrity. For example, the AIA's managing director of communications, Charles Hamlin, declined to discuss the subject of fame in relation to the AIA's long-studied television advertising campaign, saying he thought the concept relatively unimportant.

But it may be to its own detriment that the profession continually denies rather than recognizes the power of the media image, whether it be of a famous face or a famous facade.

Signs of the times

How did fame become such a pervasive value of our culture? Times were simpler when architecture functioned as a sign, when a steeple signaled a church, or columns and a pediment the strength of society's basic institutions. The changes in social and economic values that accompanied and even fostered the Modern movement eventually reduced the power of the sign to an abstraction. The new "sign" became the image, the logo, or the cover photo, which in turn helped to spawn the visual culture that now predominates in the Western world.

As if unaware of the changes, architecture has relinquished its role as meaningful icon to the 30-second sound bite, becoming primarily a mute background to media's visual cacophony. As a result, architecture's significance in the public eye was lost to the cult of the image and, concurrently, the cult of celebrity.

When Philip Johnson beamed from the cover of *Time* magazine in 1979, cradling his Chippendale-topped AT&T tower, he unwittingly ushered in a new era of architectural celebrity. Perhaps eager to recognize leaders of the new, image-making Postmodern style—an architectural movement that reintroduced signs like the column and pediment—the media tapped Johnson, Graves, and Robert A.M. Stern, FAIA, each of whom became nationally recognized. "Pomo" passed quickly, lasting maybe a decade, but the famous architect syndrome did not; indeed, there are more "starchitects" than ever. Richard Meier, FAIA, has been one since the 1970s, and the media hoopla surrounding his Getty Center in Los Angeles solidified his place in the public eye. Across the Atlantic, London's Lord Norman Foster has achieved a similar status.

The most recent is perhaps Peter Zumthor, the Swiss "recluse" whose celebrity status was announced in 1999 with a slim volume of thoughts, a richly printed, oversized picture book, and a *New York Times* profile. As the proliferation of media demonstrates daily, fame is not the provenance of the few. But it is the few who achieve sustained celebrity, a status architects earn by consistently producing not only work that creates an image but also, in the case of Gehry and Rem Koolhaas, for example, original and important work.

The influence of media is a fact of life that architecture must learn to use. Repeated exposure may lead to a kind of celebrity status, but it can also lead to work opportunities for architects who might otherwise remain invisible. Today, clients who want not just a building but an image that can be used for market advantage—the new IBM Headquarters in Armonk, N.Y., by Kohn Pedersen Fox is one example—often seek "stars" who attract media attention to bring their projects notice.

REPEATED EXPOSURE CAN LEAD TO WORK OPPORTUNITIES FOR ARCHITECTS WHO MIGHT OTHERWISE REMAIN INVISIBLE.

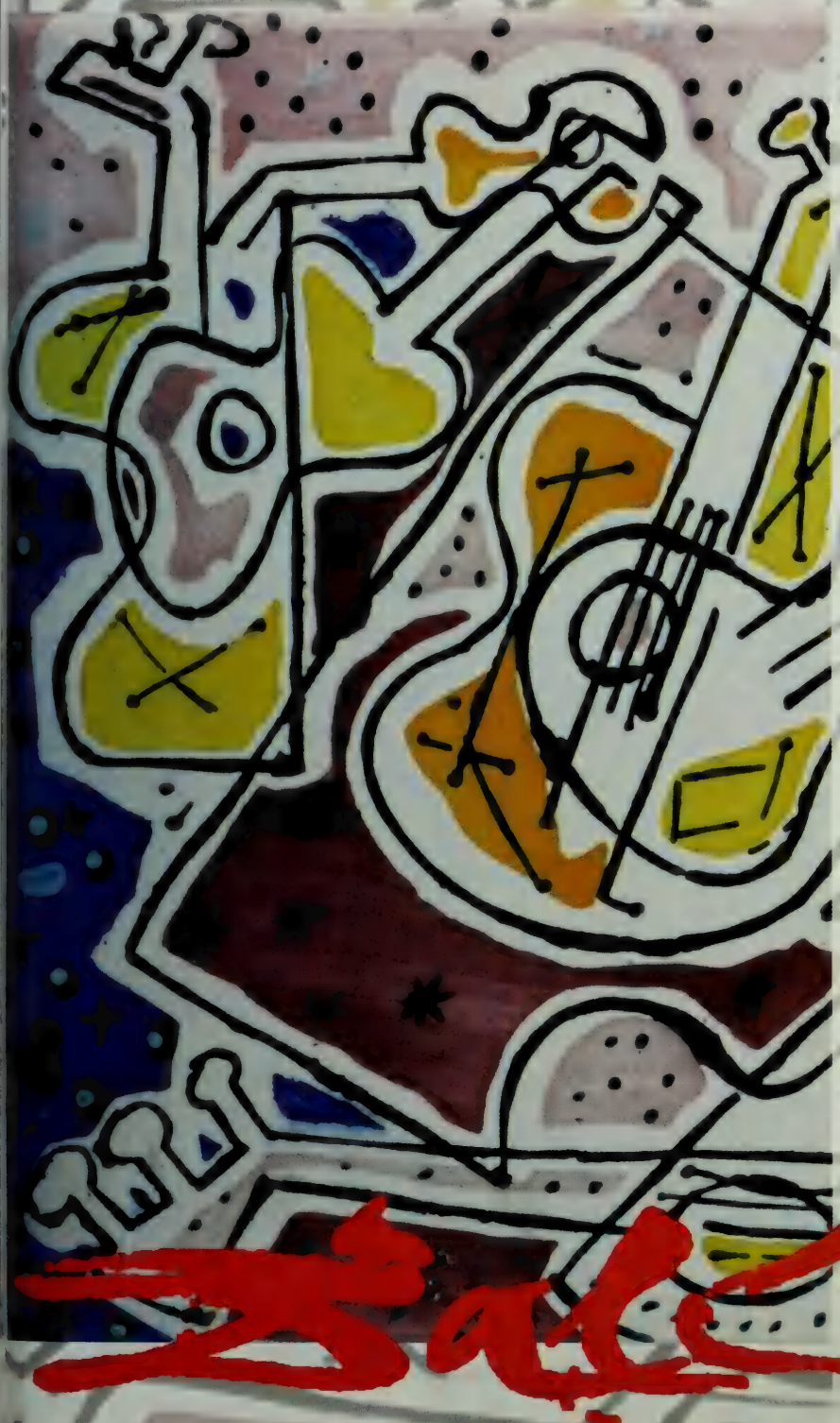
When architects use their celebrity to also bring such commissions to a level of distinguished design, this can only benefit the public and the profession as a whole. The media spotlight puts pressure on architects, for it raises public awareness, and expectations, of architecture, and in so doing it keeps architecture culturally at play. In this task, media and fame, are architecture's allies. ■



Star quality (left to right): Michael Graves, FAIA, Robert A. M. Stern, FAIA, and Lord Norman Foster, HON. FAIA.

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Snapshot



A trio of glass boxes makes a colorful entrance

By Elizabeth Harrison Kubany

Designed in 1964 by Kevin Roche, FAIA, and the late John Dinkleloo, the Fine Arts Center at the University of Massachusetts at Amherst is a Brutalist mass of cast-in-place concrete that houses a concert hall, black-box theater, and art gallery.

In between the volumes that contain the concert hall and theater, an open plaza formerly ran from north to south. Instead of creating one clearly identifiable entrance into a central lobby space, Roche and Dinkleloo put separate theater entrances on either side of the plaza. Their use of an architectural void to signal an entryway was problematic for several reasons.

The open plaza took the place of lobby space for the two theaters—an inappropriate solution for this temperate climate. Particularly in winter, this open space became a vortex and sucked in wind off the pond on the north side of the building, making it an uncomfortable place to be. Moreover, the entrances were shallow, with only about 12 feet between the entrance doors and the far walls of the



Two types of glass offer differing levels of transparency to direct the viewer's gaze through the building (above and below). Colored lights animate the south elevation at night (below right).



theaters, giving patrons no place to gather before, during, or after performances. Finally, water leaking from the plaza into the art gallery below it was a constant problem.

The challenge for Perry Dean Rogers & Partners of Boston, commissioned in 1997 to solve these problems, was to define a 5,000-square-foot entrance that would act as a marquee—announcing the building's presence on campus—and a gathering space. Like a bejeweled howdah on the back of a two-ton elephant, the tiny shelter commands far more attention than the original 250,000-square-foot structure.

Conceptually, the project consists of three glass boxes—one large, central box and two smaller boxes—that connect the concert hall and theater and make a large gathering space while maintaining a link between the upper and lower parts of the campus. Two types of glass—semitransparent, cast channel glass (a German product where one piece of C-shaped glass interlocks with an adjacent piece) for texture and standard shop-front glazing—offer differing levels of transparency and direct the viewer's eye through the entrance.

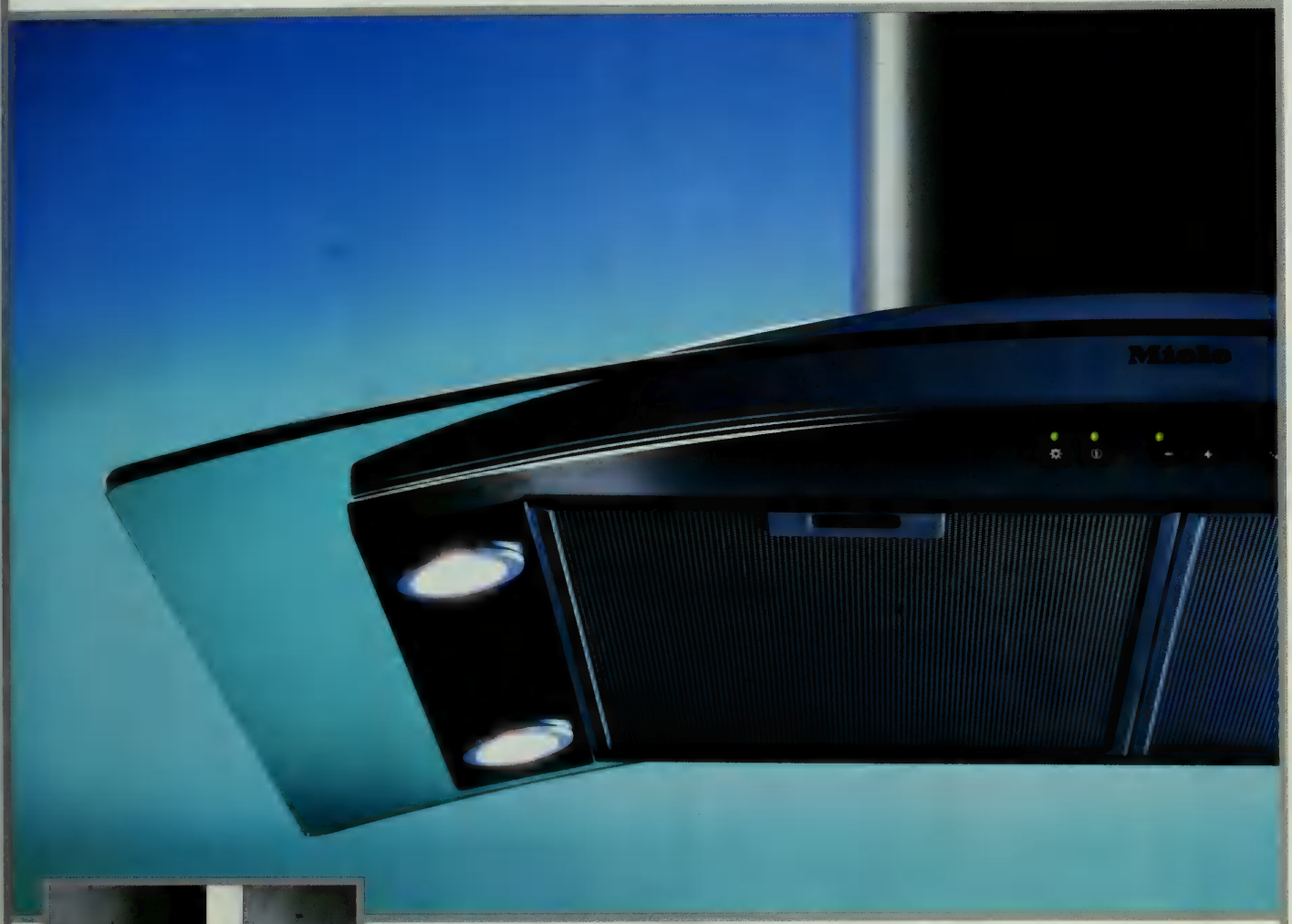
In clear contrast to the massive opaque concrete volumes of the existing building, the new lobby is luminous and colorful. As design principal Peter A. Ringenbach, AIA, explains, "amid the dull, monochromatic mass of the concrete structure, the use of light and bright colors was intended to attract people to this object and announce it clearly as the entrance."

Plaster sculptural lanterns—the northernmost one painted bright yellow and the one in the center bright red—hang from the structure of two of the glass boxes. During the day, their bright colors are visible through the glazing. At night, the illuminated, painted surfaces fill the glass boxes with saturated color. At the south elevation, colored lights provide a continuously changing spectacle.

The new entrance, while of a different time and style, completes the existing building. Where the original architects left only a void, Perry Dean Rogers & Partners has designed something powerful, which functionally and aesthetically fulfills its purpose and does so with flair. ■



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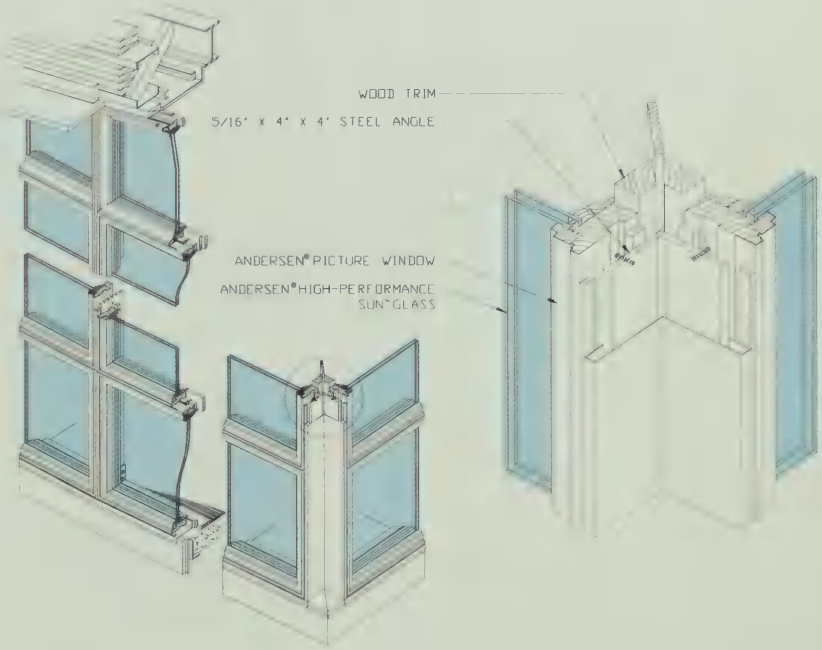
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CIRCLE 32 ON INQUIRY CARD



GSA: Uncle Sam speaks up for high design

The nation's biggest landlord just found style

By Andrea Oppenheimer Dean

If you want to see how American public buildings are changing, just look at Ed Feiner's walls. Edward Feiner, FAIA, is chief architect of the General Services Administration (GSA), landlord for 350 million square feet of space and director of the federal government's biggest building boom since the New Deal. On one wall in Feiner's Washington, D.C., office are images of Great Society-era federal building projects: isolated, faceless boxes, most of them designed by interchangeable firms. On the adjoining wall are drawings and photographs of recently commissioned projects. Most are urban-oriented and as diverse as their designers, among them Richard Meier, FAIA, Kate Diamond, FAIA, Henry N. Cobb, FAIA, Thom Mayne, AIA, Frances Halsband, FAIA, Mehrdad Yazdani, AIA, Robert A.M. Stern, FAIA, and Andrea Leers, FAIA.

What happened to effect this extraordinary change in course? At the turn of the last decade, two forces were pushing in the same direction. One came from the outside, from a new courthouse building program and the example of a couple of judges intent on nabbing the best architect for their new building. A similar impetus came from within GSA, largely instigated by Feiner, an unlikely bureaucrat. "If he didn't exist, we would have had to invent him," says Robert A. Peck, GSA's Commissioner of Public Buildings. Feiner—shod, as always, in cowboy boots and coiffed in a crew cut—will tell you excitedly in a Bronx accent that he was "always interested

Andrea Oppenheimer Dean is a contributing editor for RECORD *based in Washington, D.C.*





Project: *Oklahoma City Federal Campus*
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Budget: *$25-$30 million*
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in finding the basis of how design molds culture." He arrived at GSA in 1981, charged, he says, with changing the quality of government design.

Opportunities to do so were scant during the Reagan and early Bush years, until 1990, when the government launched a $10 billion building program. By coincidence, the government's building boom began during the economic recession of the early 1990s when even widely published architects were short of work. Since the 1960s, the number of federal judges had nearly quadrupled; criminal cases alone had increased by nearly 200 percent between 1980 and 1990. Most old courthouses, bulging at the seams, were nightmares for the federal marshals in charge of security, mainly because existing circulation forced the public, judges, and defendants to traverse the same corridors and use the same restrooms. The courtrooms, themselves, were ill-equipped to cope with increasingly complex trials that often involved teams of attorneys, multiple expert witnesses, and sophisticated information technology. And so the bulk of new construction, about $8 billion worth, would go to building 159 courthouses, of which 25 have been completed. An additional $700 million a year was slated for modernizing existing courthouses.

Reinventing the standard

In Boston, district judges Douglas P. Woodlock and Stephen Breyer (now a Supreme Court justice) insisted that their planned courts building be exemplary and, consequently, helped reshape GSA's criteria for selecting designers. Until then, GSA had favored large, unadventurous firms. Woodlock, an architectural history buff, says he was convinced that "government architecture is to architecture what military music is to music," and that GSA, left to its own devices, would not select an architect worthy of the commission.

Observing an architect-selection process for another courthouse persuaded Woodlock that judges should be included. In 1991, Woodlock and Breyer took matters into their own hands. They insisted that Feiner be a member of their selection panel, an experience that opened his eyes, Feiner says, about how the process should be conducted. The judges placed advertisements in *Progressive Architecture,* ARCHITECTURAL RECORD, and *Architecture* magazines "to inform the profession that this was not to be business as usual for GSA," recalls Woodlock. And he and Breyer hired William Lacy, FAIA, secretary to the Pritzker Architecture Prize jury and an architect-selection consultant. Lacy helped draw up a shortlist composed of Gerhard Kallmann, FAIA, and Michael McKinnell, FAIA; David Childs, FAIA; Robert Venturi, FAIA, Moshe Safdie, FAIA, Cesar Pelli, FAIA, William Pedersen, FAIA, and Henry L. Cobb, FAIA. Cobb was the panel's choice.

Feiner, meanwhile, had begun to make significant changes within GSA. In 1990, in an attempt to elevate the profile of design within the agency, he revived GSA's design awards, which had been suspended for more than a decade. For three years, few new buildings made the final cut. Hoping to find ways of improving GSA design, Feiner brainstormed with all three years' award winners and jurors. Hugh Hardy, FAIA, advised that if GSA really wanted to attract the best and brightest, it needed to shift the emphasis of architect selection to design talent, simplify the process, and add outsiders to the selection panel. Moving with uncharacteristic speed, GSA replaced its cumbersome and costly application procedure with a boiled-down, two-stage system that sought the best designer for the job. Feiner dubbed it the Design Excellence Program.

Number-one priority: Can you design?

By late 1993, architects answering proposal requests in the *Commerce Business Daily* faced a selection process that began by winnowing applicants on design-ability criteria. Competitors submitted a design portfolio accompanied by a statement of the lead designer's intent and qualifications. Gone was the requirement for previous experience with the same building type. Gone also were the four-inch-thick application forms asking for lists and qualifications of every subcontractor. The reforms reduced the cost of applying and opened the door to new designers. Not until the second stage did specifics of the project team, the designer's





track record, and the firm's experience with similar government buildings—formerly GSA's main selection criteria—become important issues. Now, a lead designer could compensate for inexperience—on, for example, a courthouse complex—by partnering with a seasoned firm that would act as architect of record. Similarly, a national firm new to an area could join forces with a local firm. All selection panels for projects estimated at more than $25 million now include "peers"—GSA's moniker for accomplished nongovernment professionals, who participate in selecting designers and assessing their work during design review.

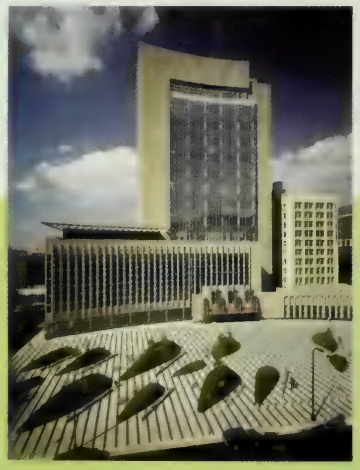
Since initiating the Design Excellence Program in 1994, GSA has extended it to all its construction programs. In addition to courthouses, it is building 20 to 22 office and laboratory structures a year, most of them under a lease-construction program, and spending $30 million a year for new border installations. Jim King, director of the Border Station Center of Expertise in Fort Worth, says that although GSA will build only three stations in 2000, "there's potential for 30 to 40 projects in the future." GSA is also applying its new approach to the renovation of 1,800 existing buildings—400 of which are listed on the National Register—especially to their interiors, "which send symbolic signals to the American people—many of them embarrassing," says Commissioner Peck.



"We want a broad range of talent," says Peck (above), "which means getting the right people on our selection panels and doing better outreach."

Dignity has no formula

The list of design architects recently commissioned by GSA suggests a laissez-faire attitude toward style. A minority view is represented by John Paul Carlhian, FAIA, who believes that historical styles are the most appropriate for public buildings. But GSA stands by a characterization of public architecture expressed by Senator Daniel Patrick Moynihan (D-N.Y.) in a Senate subcommittee report he authored in 1962, as special assistant to Secretary of Labor Arthur J. Goldberg. The report opposed prescriptions while



Project: *United States Courthouse, Minneapolis*
Architect: *Kohn Pedersen Fox*
Associate architect: *The Alliance*
Total project cost: *$91.5 million*
Completion date: *1997*



Project: *Mark O. Hatfield Courthouse, Portland, Ore.*
Architect: *Kohn Pedersen Fox*
Associate architect: *BOORA Architects*
Total project cost: *$129.4 million*
Completion date: *1997*



Project: *Federal Building and United States Courthouse, Omaha*
Architect: *Pei Cobb Freed & Partners*
Budget: *$49 million*
Completion date: *2000*

PECK SEEKS "ADVENTURESOME" DESIGN

Shortly after being appointed commissioner of GSA's Public Buildings Service four years ago, when the phrase "distinguished new public buildings" seemed an oxymoron, Robert A. Peck threw his support behind the fledgling attempt to upgrade GSA design from mediocrity to model. Peck, an attorney, had honed his design advocacy skills working for the National Endowment for the Arts' federal design improvement program during the 1970s, overseeing GSA's building program as Sen. Daniel Patrick Moynihan's chief of staff during the late 1980s, and serving as the AIA's chief lobbyist during the early 1990s.

"There were certain folks here who thought design excellence was silly," he says. "To me that flew in the face of the history of federal architecture from the time of [George] Washington until the end of World War II. Then, something went seriously off the tracks. Take the Helena, Mont., federal building at the end of Last Chance Gulch. The building is ugly, and that's been the image of the federal government in Montana."

To blame until recently, he believes, was the architect-selection process. "It used to be," he says, "that we'd think, 'I know I won't get into trouble if I pick a big firm that I know is safe'. Since we changed our selection process, it's become, 'I know I won't get into trouble as long as I pick a real star.' But we want a broad range of talent, which means getting the right people on our selection panels and doing better outreach. We have to convince regional and emerging talent that it's worth their while to come in. We're not there yet."

Peck regards design review by "peers"—GSA lingo for high-caliber non-government design professionals—as critical for proving the agency's commitment to quality. "Even if you select the best designers," he says, "they may be tentative until they're sure you'll actually go along with their best work. At times in the past, GSA selected some pretty good designers, but they wouldn't put their best people on the project or give it their best work because they were afraid to be too adventuresome for the government. It's good for them to have someone looking over their shoulder saying, 'No, that's not good enough. Give it your best shot.'"

What about government agencies or departments that don't care about quality design or are leery of it? "The profession needs to make it clear that quality design is not distinct from design that works," he says. "And you have to say, 'Do you really want to be on the trailing edge of public image or do you want to be out there with something up-to-date, creative, a little adventuresome?'"

Peck dismisses charges that good design costs too much. "We may be paying a little bit more for good design," he says, "but on a $60 million project, the difference is maybe a tenth of a percent of the total. The design fees are, in some cases, tragically low and capped by statute. We've set up a system of cost benchmarks. Where we're clearly paying more—and I don't apologize for this—is in the construction." GSA recently extended the design excellence program to construction, and Peck recounts that when a crooked contractor complained to his senator about being eliminated from consideration for a project, "I told [the contractor], 'for 20-plus years you've been a low-ball artist, a change-order artist, and we're not going to hire you 'til you change around.'"

A big design issue, he says, is providing security without sacrificing openness—"a huge opportunity for architects. It's up to them to help us prevent security from overwhelming everything else, to the point that buildings aren't attractive or friendly or inviting." If failure results, he says, "a time will come when the public reacts with, 'Those damn bureaucrats are walling themselves off from the people they're supposed to serve.' We can't let that happen."



Project: *U.S. District Courthouse (Edward Gignoux Federal Courthouse), Portland, Maine*
Architect: *Leers Weinzapfel Associates*
Cost: *$13 million*
Completion date: *1996*





Project: *U.S. District Courthouse (Harold D. Donohue Federal Building and Courthouse), Worcester, Mass.*
Architect: *Leers Weinzapfel Associates*
Cost: *$14 million*
Completion date: *1995*

"monumental," an architectural style and form which is distinguished and which will reflect the dignity, enterprise, vigor, and stability of the American National Government." In courthouse design, observes William Pedersen, GSA's attitude toward aesthetic expression is, however, often sabotaged by "more conservative judicial clients," namely judges.

Tweaking the new, improved system

For Feiner, the matter is simple: he wants his agency's buildings to pass muster with the aesthetic sensibilities of design professionals and for the public to like them. In fact, one of his favorite trophies is a telephone book for Berkeley, Alameda, and Oakland; gracing its cover is the Oakland Courthouse and Federal Building, designed by Kaplan McLaughlin Diaz. "Imagine," Feiner says, "Berkeley with a picture of a government building on its phone book."

GSA's amended selection has, in fact, attracted firms such as Thom Mayne's Morphosis that would not have applied for government commissions or, perhaps, even been considered under the old system. Still, very few minority firms apply for commissions, a failing that Feiner is attacking mainly by spreading the word about GSA. More small firms will be attracted, Feiner believes, as jobs for smaller courthouses and more border stations come on line.

Another weakness in GSA's push for design excellence is inescapable: the staffs of the agency's 11 regional offices are not uniformly knowledgeable or interested in design. For example, asked his opinion of GSA as a client, Richard Meier remarked, "The judges were the client."

The peer-review process has been evaluated and criticized during annual discussions between Feiner and the peers. As a result, GSA now introduces review earlier in the design process and has expanded a single review session to three. Feiner concedes that, in some cases, review can be a mere formality, especially when the reviewer may fear antagonizing an eminent designer who can ignore recommendations anyway.

To architects' complaints that they are prevented from seeing their designs through to completion, Peck responds that he, too, is concerned with follow-through. GSA employs construction managers, who, he says, stepped into the void left when "someone gave architects bad advice, telling them not to supervise construction. You get sued anyway; lawyers sue everyone in sight once they decide to go for it." Feiner says he's open to any changes that can improve the final product.

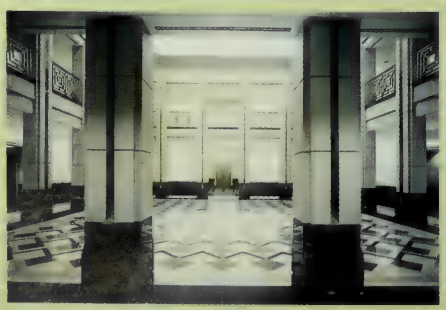
The main criticism from officials, the public, and the press has had to do with—you guessed it—costs. Kohn Pedersen Fox's 1996 Foley Square Courthouse in New York City was censured as a wasteful folly, and Cobb's Boston courthouse of 1998 was castigated as "a Taj Mahal" while

"IMAGINE," SAYS FEINER, "BERKELEY WITH A PICTURE OF A GOVERNMENT BUILDING ON ITS PHONEBOOK."

in construction. Architecture critic Robert Campbell, FAIA, who reported on the Massachusetts controversy for the *Boston Globe*, recalls that a congressional subcommittee "accused the architect of seeking to do a distinguished building, as though that was a crime. That's what architects should be trying to do."

GSA, whose erratic budgets are vulnerable to congressional impulse, responded by establishing benchmarks for construction costs that are updated every couple of years. As a group, however, courthouses are 15 percent more expensive than office buildings because of security





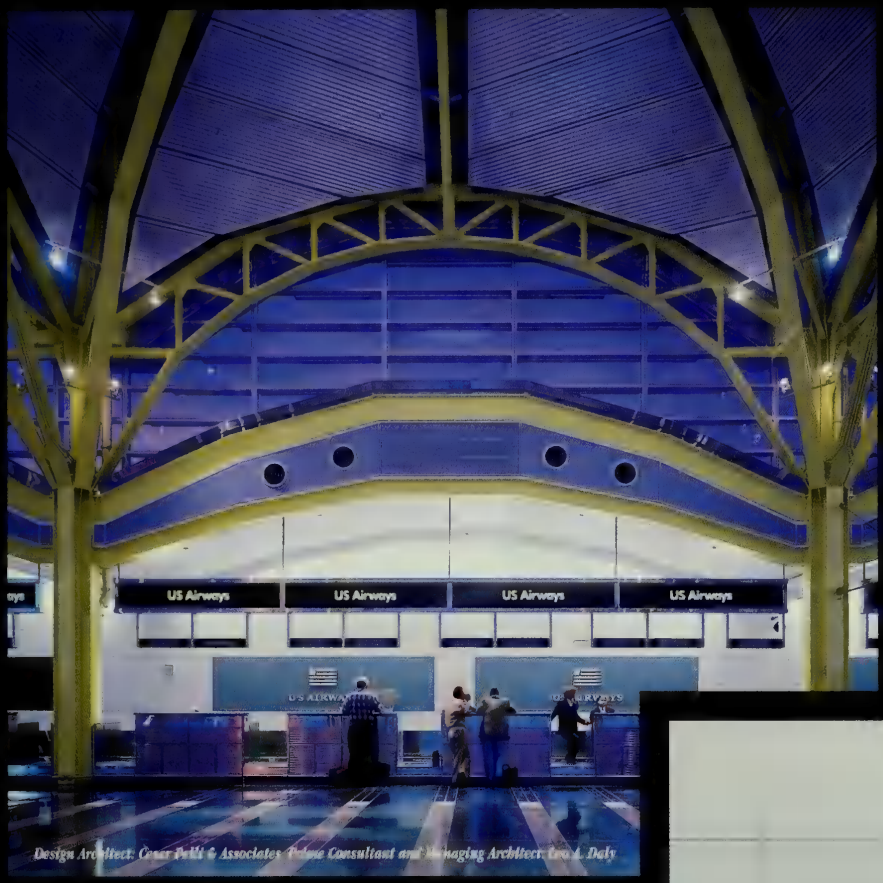
Project: *U.S. Courthouse (Sen. Robert C. Byrd Courthouse), Charleston, S.C.*
Architect: *SOM, New York*
Associate architect: *Gandee/Kreps Associated Architects*
Cost: *$80 million*
Completion date: *1997*



Project: *Federal Building and United States Courthouse, Las Vegas*
Architect: *Dworsky Associates*
Associate architect: *HCA*
Executive architect: *Langdon Wilson*
Budget: *$90 million*
Completion date: *2000*



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measures and information technology, not aesthetic extras.

Most of the remaining challenges to improving public building design have to do with risks and the willingness to take them. One obvious threat to maintaining GSA's momentum is government inertia. "If you stand still, you die," says Feiner, warning that it's important both to go slowly and to take risks. The inherent conflict of security needs for a building accessible to the public is, perhaps, the thorniest problem. Last December, Sen. Moynihan, while introducing a symposium on the subject, insisted, "We will not let Timothy McVeigh be our most influential architect. Worrying is a lot easier than learning that we cannot do anything about risk but move it around."

The experience of Carol Ross Barney, FAIA, designer for Oklahoma City's new federal courthouse and office building, highlights the issue's ambiguity. She recounts that when prospective tenants—people displaced from the former Alfred P. Murrah Federal Building—were surveyed, they said their primary concern was security; second most important, they said, was having a parking space next to the building.

The Feiner effect, its problems notwithstanding, is spreading to state and local governments, first to courthouse construction, which gratifies Feiner. "Someone once asked me if we're creating great buildings," he says. "I think there probably are some in the pile, though we can't predict which ones. But if you took a baseline and asked, in toto, Is this better than before? I think the answer would be yes." It's hard to disagree. ■

WHAT ARCHITECTS SAY ABOUT GSA

Andrea Leers, FAIA: "The GSA process has improved tremendously. I think GSA is looking to cut through the cumbersome procedures, but they're up against a mountain. When we begin a GSA project [her firm has done three], we get a carton full of loose-leaf notebooks with guidelines. It's daunting."

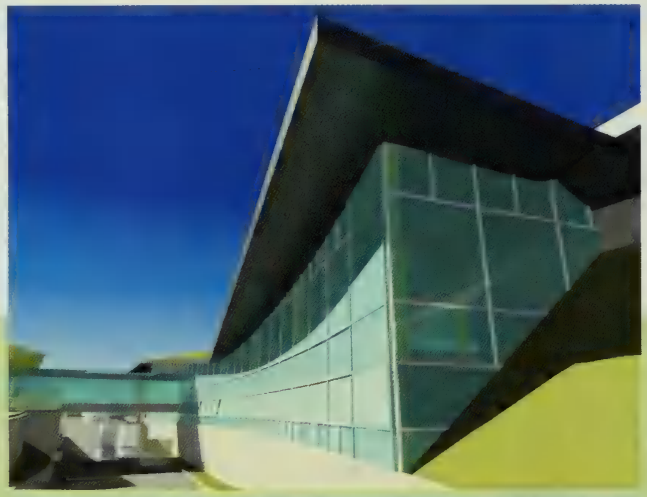
William Pedersen, FAIA: "GSA compares favorably to the best institutional clients. There's a genuine attempt to find a legitimate architectural expression for government buildings."

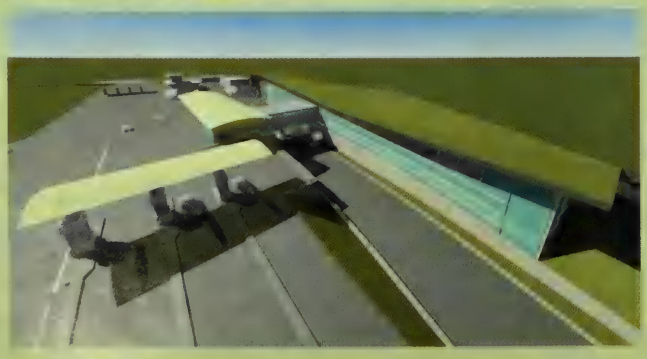
Carol Ross Barney, FAIA: "The Design Excellence Program eliminated the need to have experience in the building type. Also, the regional GSA officers have become more sensitive . . . There are frustrating things: you can't get a slower-moving client. But the current regime is willing to look at unorthodox ideas; in some ways, they may be at the cutting edge."

Henry N. Cobb, FAIA: "It's a process with an attitude of openness, of testing things, getting feedback—things you don't associate with bureaucracies. That said, not enough responsibility and authority is placed in the hands of the design architect . . . It's a problem; not a fatal flaw."

Thom Mayne, AIA: "When my office shows up with two commissions at once, I suspect that must signal something. At the beginning, I was enormously skeptical. But you sense you have someone who knows who you are and wants you. You can't get a better start than that."

Richard Meier, FAIA: "I thought the selection process went pretty well; I was chosen. Of course, they put monkey wrenches in our way; that's how the government works. [During the process] the budget for our courthouse in Islip [N.Y.] was reduced 12 percent. The program wasn't reduced 12 percent. But they do come out with a better building than any other group in government."





Project: *U.S. Border Station, Sault Sainte Marie, Mich.*
Architect: *Ross Barney Jankowski Architects*
Budget: *$10 million*
Completion date: *2001*





Project: *David Skaggs Research Center, National Oceanic & Atmospheric Association, Boulder, Colo.*
Architect: *Fentress Bradburn Architects*
Cost: *$57 million*
Completion date: *1999*

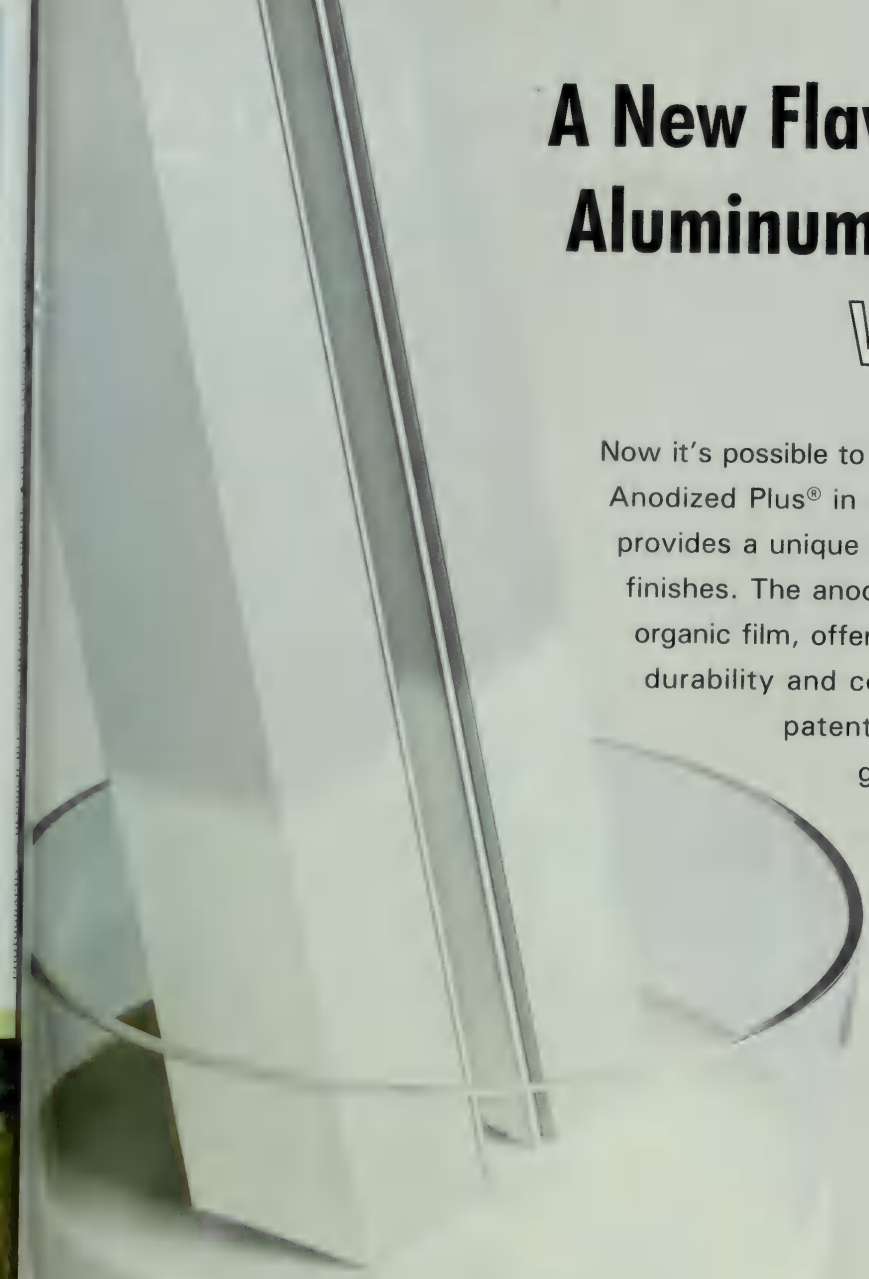
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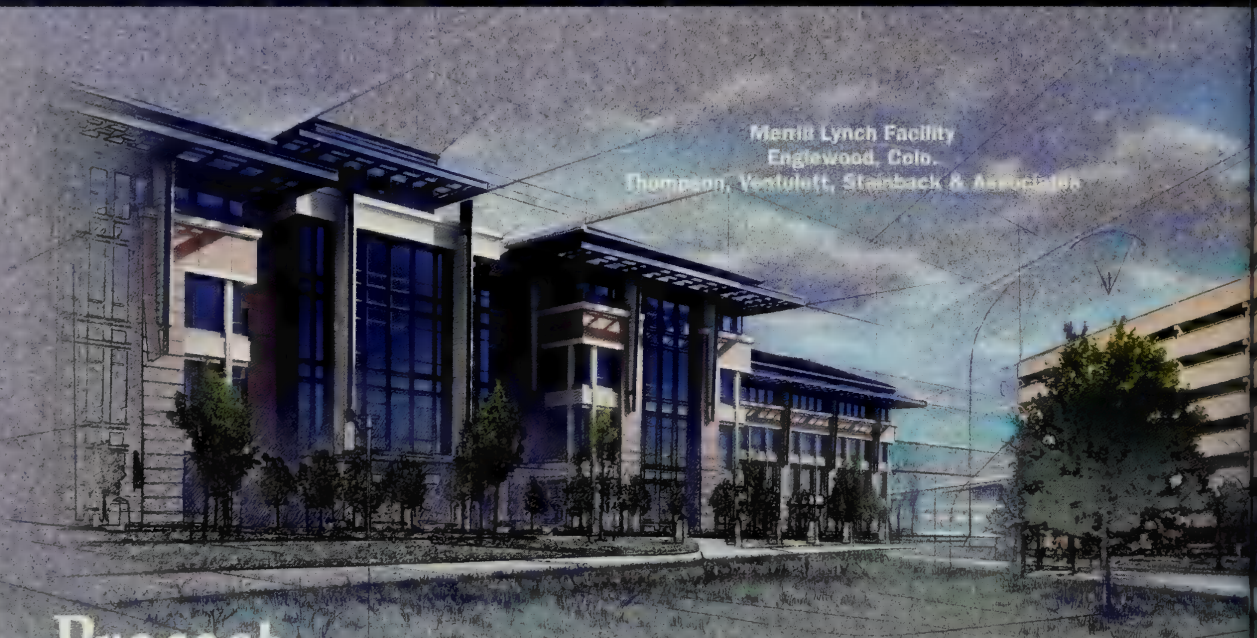
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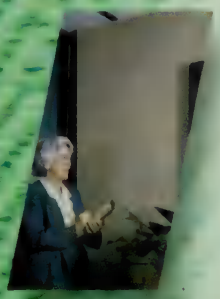
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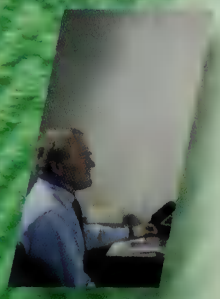
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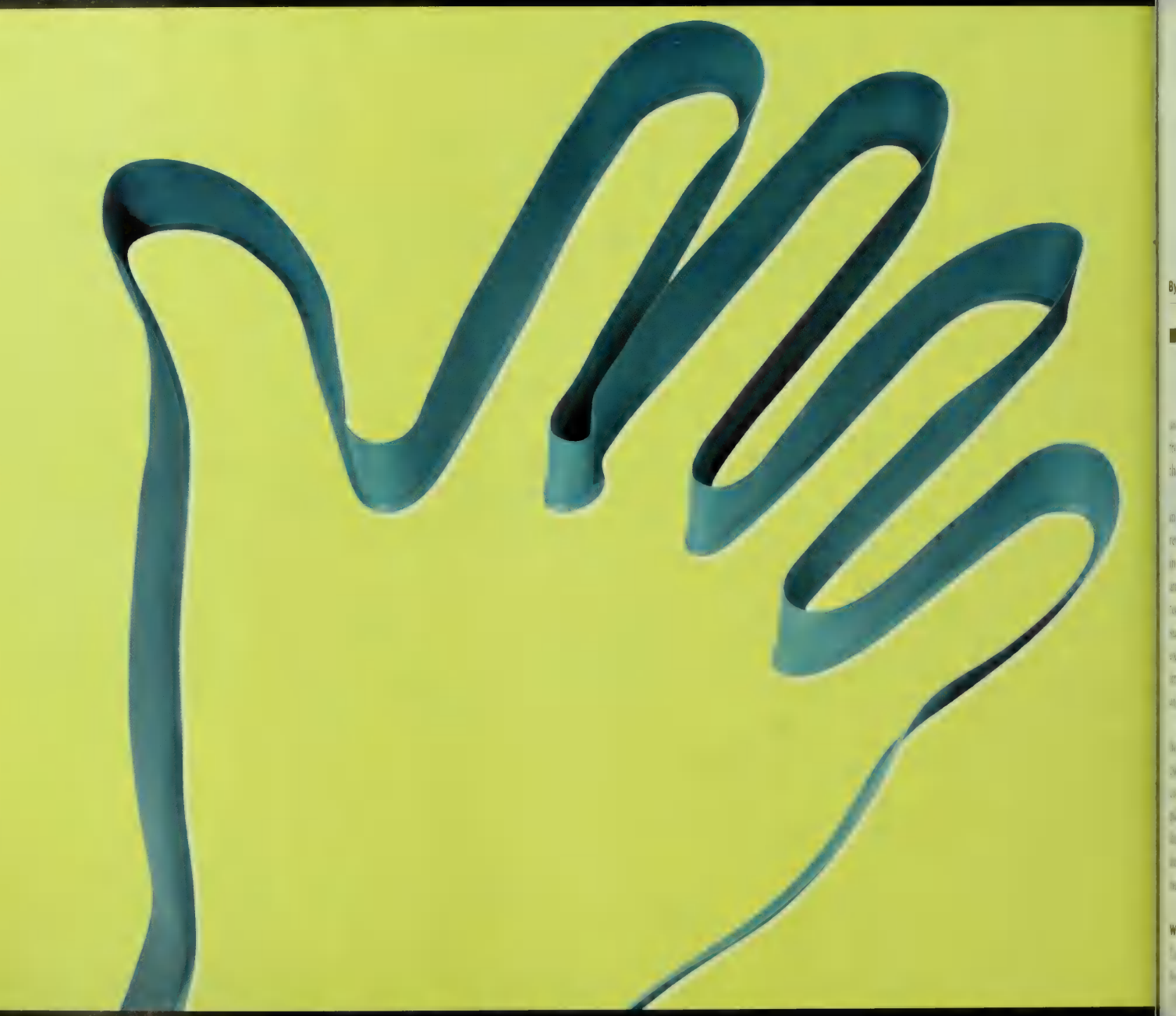
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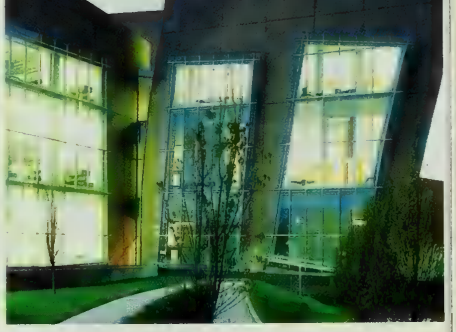
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THE AMERICAN CAMPUS



Universities and colleges, such as the University of Cincinnati, are devising architectural and planning strategies for dealing with the pressures of growth.

By Suzanne Stephens

The construction boom at colleges and universities in the last decade has been good for architects. And, it goes on: F. W. Dodge reports that $4.4 billion was spent on college facilities in the U.S. in 1999, up 54 percent from the previous year. *American Schools and Universities* magazine reports that more than $24.3 billion will be spent from 1999 to 2001. About 70 percent is for new construction. But what has the boom done for the architecture and planning of campuses?

To accommodate their undergraduate and graduate students, who in 1995 numbered about 14.3 million, schools and universities have been rethinking their planning strategies and are trying to rectify mistakes made in the last growth period in the 1960s and 1970s. At that time, many colleges and universities, once considered models of community cohesion and architectural identity, devolved into a chaotic hodgepodge of mediocre buildings surrounded by parking lots. Correcting past errors, retaining continuity with existing architectural heritage, and allowing for growth obviously takes imagination, critical judgment, and (let's be real) money. There is also another important ingredient: clients prepared for the long haul.

The University of Cincinnati, which has spent more than $1 billion on capital construction in the last 10 years, illustrates this point particularly well. Faced with reshaping an overbuilt campus, university officials brought in architects with high-design reputations, as well as a master planner in the vanguard of landscape design. In addition to affirming the desire for improved architectural quality, the new master plan calls for designing infill buildings that leave more open space, create pedestrian connections between campuses, and change parking lots into green areas.

We love the halls of ivy

Until about 1940, colleges were paradigms of architecture and planning, as John Venable Turner shows in his book *Campus, an American Planning Tradition* (AHF/MIT, 1984). In the 17th and 18th centuries, they were built around open quads or yards, such as Harvard, or malls, such as the University of Virginia. During the 19th century, more informal landscape planning and a relation to nature were favored, especially where land was plentiful. The Beaux Arts influence in the early 20th century reintroduced a formal order, and the English medieval enclosed quadrangle came back. But after World War II, the modern campus, arranged according to circulation patterns, and new buildings, conceived as objects in space, predominated. By then, many campuses, once so unified in image, had grown into messy compilations of architectural and planning typologies.

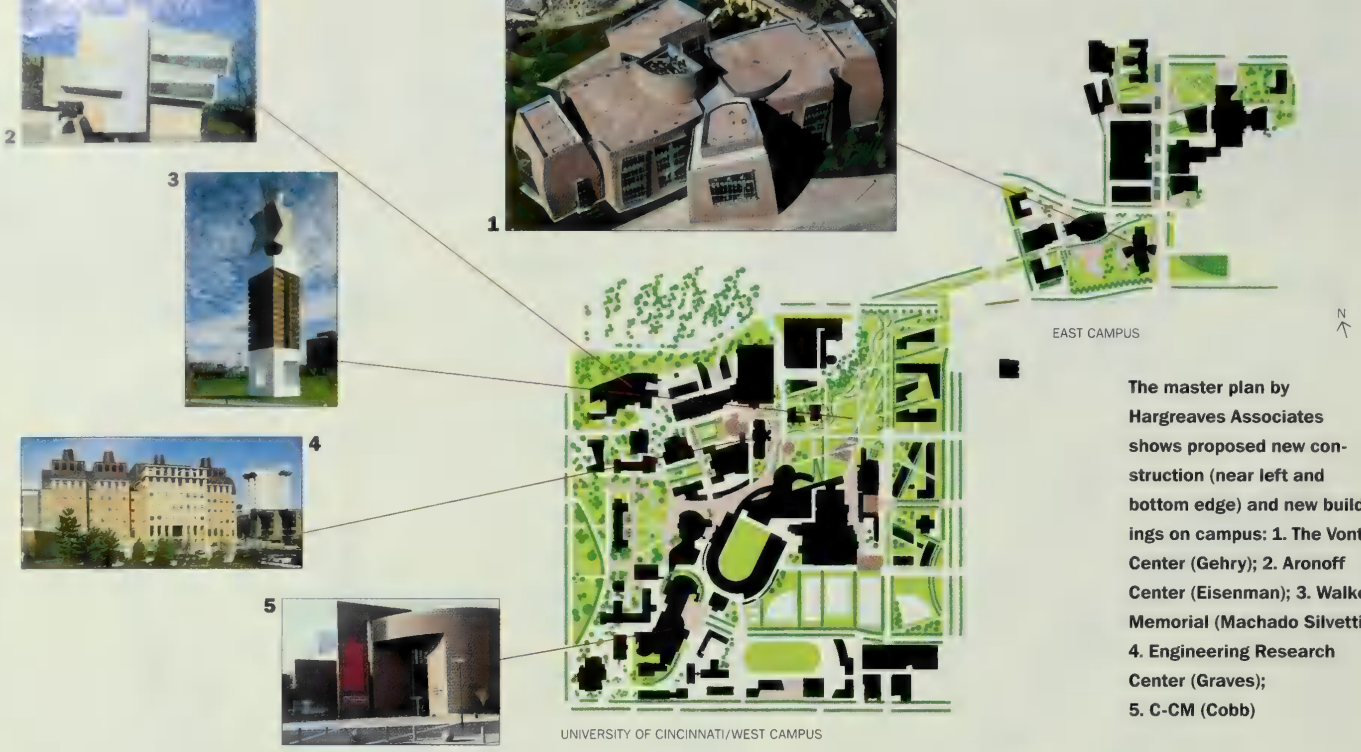
Even paradigms aren't perfect

Even the most revered campuses, over time, have experienced problems that sound familiar today. In October 1909 in ARCHITECTURAL RECORD, Montgomery Schuyler called Harvard a "higgledy-piggledy" grouping of "raw and bald brick edifices." Schuyler's description of 19th-century Harvard could be applied to the University of Cincinnati in the early 1980s. Except that Cincinnati's far worse situation would have made Schuyler roll over in his grave. Cincinnati had been founded as a city university in 1819, starting with a law school and medical college. Michael Graves, FAIA, who studied there in the 1950s, remembers it as a "streetcar school," where most students commuted from home. It had one main quad (Baldwin) and old Colonial or 1920s Beaux Arts brick buildings enhanced by the patina of age. "You walked everywhere," Graves recalls, "it was very domestic in scale." Any potential charm he remembers was all but eradicated by the growth in the 1970s. By the beginning of the 1980s, about the only common denominator was brick. "There was no architectural statement," says Ron Kull, AIA, the university architect, "you couldn't do much except plant kudzu."

Give me architecture over kudzu

Burgeoning enrollment had prompted ungainly construction at Cincinnati. When the school became a state university in 1977, its student population mushroomed from 15,000 students to 35,000. In the early 1980s, the incoming president, Joseph Steger, decided to deal with its second-rate architectural image right away. Steger explains his approach today: "With a diverse student body and curricula, we said 'Why not enhance the diversity with architecture?'" The school, he knew, could never have the cohesion of the University of Virginia. "Even if it did," he says, "That would be boring." Fortunately, he found a knowing ally in Jay Chatterjee, then the new dean of the School of Design, Arts, Architecture, and Planning (DAAP).

Chatterjee had already been agitating to have a nationally known architect renovate and expand the DAAP building. Starting in the 1980s and continuing to the present day, Chatterjee and Steger, joined by Kull and the vice president of finance and administration, Dale McGirr, have brought in big-name architects to work with local firms to design a group of buildings for the West Campus. The architects included Peter Eisenman, FAIA, who got the commission to design the Aronoff Center for Design and Art (1996); David Childs, FAIA, of SOM, who designed the Edwards Center (1992); Michael Graves, who did the Engineering Research Center (1995); and Henry Cobb, FAIA, of Pei Cobb Freed, who



The master plan by Hargreaves Associates shows proposed new construction (near left and bottom edge) and new buildings on campus: 1. The Vontz Center (Gehry); 2. Aronoff Center (Eisenman); 3. Walker Memorial (Machado Silvetti); 4. Engineering Research Center (Graves); 5. C-CM (Cobb)

just finished the College-Conservatory of Music (1999). Now Frank Gehry, FAIA, has designed the Vontz Center for Molecular Studies on the East (medical) Campus [see page 80]. Machado and Silvetti Associates was commissioned to create a 60-foot-high monument for Sigma Sigma honorary fraternity in the open space designed by Hargreaves Associates, a landscape firm with offices in San Francisco and Cambridge, Mass.

A new kind of plan

George Hargreaves, a landscape architect known for his geometrical earth forms and unusual textures, was hired to conceive the master plan for Cincinnati in 1989, after he had come to Chatterjee's attention. "Here was a young man on the rise who would give us a different product," says Chatterjee. Hargreaves had never done a master plan for a campus before, but the clients were willing to take a risk. Hargreaves and his project landscape architect, Mary Margaret Jones, went to work to provide the connective tissue between the West and East campuses and create a sense of place out of the 168 acres. Also needed was 2 million square feet to be added to the physical plant, which would mean a total of 12 million square feet of buildings. As a result of the plan, Cincinnati has managed to increase its open space by about 25 percent over the last 15 years. Some buildings were razed, others were converted to different uses, and new ones were fit into densely packed clusters. Parking lots, however, remain an asphalt blot, which the university is still in the process of removing, as more linked pedestrian walks, transit, and garages are put in place.

Hargreaves' sculptural landscaping—in evidence in the Sigma Sigma Commons, the medical center's University Commons under construction behind the Vontz Center, and three other such public spaces—is a far cry from the elm trees, ivy, and rhododendrons in campuses of yesterday. His landscapes stress manipulating the earth and precisely trimming low vegetation in geometrical patterns that often relate to buildings nearby. "Landscaping is the fifth facade of the building," Hargreaves state

Still Hargreaves' design stamp has its critics. Graves, whose building overlooks the Sigma Sigma Commons and forms a link to Hargreaves' Library Square, comments, "Traditional landscaping and walkways for the spaces between buildings would work better in putting the Humpty-Dumpty of the Cincinnati campus back together. "We're not looking for avant-garde here."

On the other hand, Rodolfo Machado, a colleague of Hargreaves at Harvard, who designed the distinctive, 60-foot-tall, concrete, stainless-steel, and wood Walker Tower for the Sigma Sigma honorary fraternity in the Commons, defends the concept: "A figural architectural ground plane helps make a place and define it."

Planning strategies elsewhere

Other universities share some of Cincinnati's planning principles (but do not necessarily embrace their sculptural approach to open space). Having executed master plans for the University of Virginia, Emory University, and Johns Hopkins University, the Baltimore firm Ayers Saint Gross is a strong proponent of high density (but not high towers) and expansion through infill. "Density makes sense because it cuts down on infrastructure needs, reduces crime and encourages walking," says Jim Wheeler, AIA, a principal in the firm. Another principal, Adam Gross, AIA, adds that parking is the most severe problem on campuses. Housing students on campus can cut down on cars and "goes hand-in-hand in creating a collegial feeling."

Dorms make a comeback

The University of Cincinnati has been revising its master plan to entice more students to live on campus. It is not alone. Colleges and universities across the board are realizing that the best way to promote a sense of community and reduce dependence on cars is to build new residential halls or renovate old ones [such as the Berkeley College at Yale, page 94] and to make them more attractive to students by adding food courts, more bathrooms, and other amenities. An architecturally appealing stu-

The plans of Yale and Simon's Rock show the different approaches to campus design evolved since the 17th century, from the open and enclosed quads (below) to buildings in the landscape (right). New work includes: 6. Berkeley College (Kieran Timberlake & Harris); 7. Fisher Center (Bohlin, Cywinski, Jackson).



6





YALE UNIVERSITY



SIMON'S ROCK COLLEGE OF BARD

dent center also helps promote that old collegial feeling. At Penn, Venturi Scott Brown has been designing Perelman Quadrangle, a student center complex that involves renovating three historic buildings and designing a new addition to another. Although towers have proved to be unpopular with students (and university officials), the existing high-rises at Penn's Hamilton Village are being renovated by Kieran Timberlake & Harris of Philadelphia [see RECORD NEWS, page 38].

Housing and other student services in the revised master plan at the University of Cincinnati involve more brand-name architects. The projected construction (another 400,000 square feet) will take place along a not-yet created Main Street situated, for the most part, on the West Campus. Gwathmey Siegel is designing a student union there, Leers Weinzapfel is doing an enrollment services building, and Moore Ruble Yudell a student services facility. In addition, Morphosis is drawing up a student recreation hall that will incorporate residential space, and William Rawn Associates, with Centerbrook, is designing a dormitory. Because Main Street will have shops and cafes where students gather, Kull sees it as a strong link. "In three years, all this will hang together as a street that goes diagonally across two superblocks connecting the east and west campuses," he says.

Growth and the client

Despite the pedestrian emphasis, Cincinnati could still use advanced transit. Keeping the ever-expanding campus to a walkable, livable, and teachable size consistently presents a problem for colleges and universities. "We need to put a lid on the total gross square footage of buildings, the number of students and faculty, and the acreage of the campus," says Adam Gross. Yet universities with high student enrollments at one site tend to want to grow to attract more students, revenue, and research money.

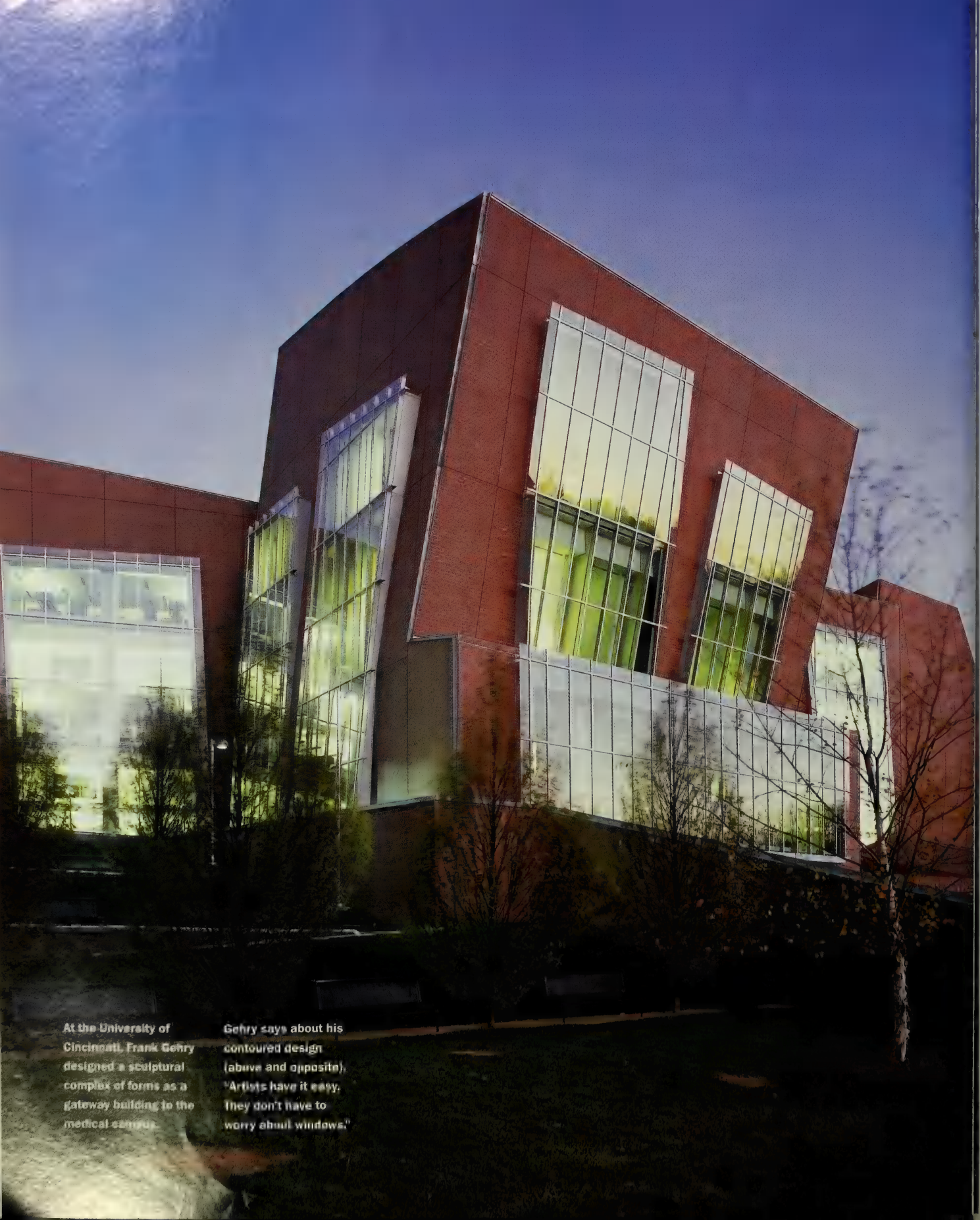
Making growth an asset through architecture and planning takes time. And the staying power of the client is crucial. Most architects concur with Chatterjee's assessment that "Longevity is the characteristic of success." Gross explains, " Mistakes are often made when reacting to an issue that must be resolved in the short run."

Money counts

Focusing on good architecture; low-rise, high-density buildings; pedestrian connections; living on campus; and landscaping means money. MIT will spend $700 million in construction over the next five years with buildings by prominent architects that include Gehry, Fumihiko Maki, and Steven Holl, AIA. Meanwhile,Yale has commissioned Polshek and Deborah Berke for arts buildings, and it is putting $500 million into new construction and renovation of its science and engineering buildings.

Stanford University, which has one of the nation's architecturally outstanding campuses, designed in 1888 by Frederick Law Olmsted and Charles Coolidge of Shepley Rutan and Coolidge, is spending $650 million in the next three years on renovation, expansion, and new construction. Possibly fearing its architectural identity might be weakened by growth, Stanford has launched a competitive design process that has resulted in buildings by James Freed, FAIA, of Pei Cobb Freed; Hardy Holzman Pfeiffer; Ricardo Legorreta, HON. FAIA; Polshek and Partners; Antoine Predock, FAIA; and Robert A.M. Stern Architects. With 16,000 students spread out on a 1,500 acre campus, Stanford hardly has the density problems of Cincinnati. But then again, it has more of an architectural tradition to hang on to.

Placing high hopes on architecture can end in disappointment. Montgomery Schuyler criticized Princeton University's architecture for being too individualistic in 1910 [RECORD, February 1910] and blamed this condition on donors' desire to be enshrined by distinctive buildings. As can be deduced given some of the names of new buildings (and now open spaces), rich alums are still important. With this money and effort, let's hope that the right strategies are being adopted. The University of Cincinnati is still very much a work in progress, and even some of the new work could use a little kudzu. Over the years, who knows. Our perceptions today about Harvard and Princeton are not Schuyler's of a 100 years ago. ■



At the University of Cincinnati, Frank Gehry designed a sculptural complex of forms as a gateway building to the medical campus.

Gehry says about his contoured design (above and opposite), "Artists have it easy. They don't have to worry about windows."

ANALYSIS Frank Gehry veers away from the brick box with his dynamic VONTZ CENTER at the University of Cincinnati



By Suzanne Stephens



So titanium doesn't wrap the Vontz Center for Molecular Studies at the University of Cincinnati. It's just plain old brick. Nevertheless, the first completed work by Frank Gehry, FAIA, since his shimmering Guggenheim Museum Bilbao opened (October 1997), still screams *Architecture*. The center, like so many of Gehry's designs, demands to be addressed in terms of its form, that is, as an aesthetic object. It is a far cry from the brick boxes that clutter so many American campuses.

It helps that Gehry doesn't use brick in a plain old way. But interestingly, he does not ask a brick "what it wants" à la Louis Kahn, either. If Kahn felt a brick wanted to be an arch, Gehry has decided the brick wants to be a bulge, (even if the bulge lacks the structural rationale of the arch). Going beyond Kahn, he has also gone against the brick's grain. And he doesn't stop there. By splitting up the building into a connected cluster of contoured masses, Gehry further departs from a conventional structure. "It's a still life of brick chunks," he explains. In counterpoint to his curving shapes, Gehry has kept the expanses of glazing flat and pushed the gridded fenestration out from the skin. "This way the sheets of glass look lighter," he explains.

Irony and perversity in Cincinnati

The result is startling, in many ways because it is so volumetric in feeling without being tectonic, that is, without indicating how those volumes are determined structurally. To begin with, the Vontz Center has a concrete column-and-slab frame. Because of the concave and convex surfaces, the brick could not be laid the normal way. Brick panels had to be fabricated off-site where they were assembled in sections, reinforced with rods and grout, and placed in a steel armature. Then the panels were attached to the concrete structure. (Needless to say, the curves required very precise computer drawings.) The irony, of course, is that brick prefab panels are anathema to most architects because they look like cheapo wallpaper. And yet the effect at the Vontz Center is opposite. While the grid for the brick panels is easy to spot, the workmanship and the texture of the brick are both good: they give the contoured skin an unexpected crafted quality. In sum, the perverse use of brick, the pronounced extrusion of the fenestration, and the lopsided forms create an eye-catching abstract sculptural landscape that retains a sense of scale and context.

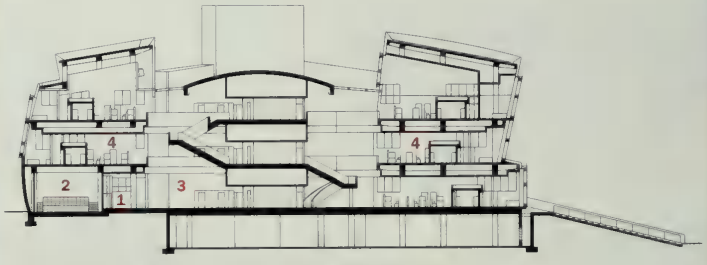
Another surprise is that the building is whimsical without seeming to strain to amuse. As R.W. Apple noted in the *New York Times* (October 29, 1999), the Vontz Center "looks like one of those cartoon buildings that are jumping off their foundations, almost ready to burst." This cartoon theme in Gehry's work is discussed in more detail by Michael Sorkin in his insightful essay in *Gehry Talks: Architecture + Process* (Rizzoli). While Sorkin does not refer specifically to the Vontz

Project: *The Vontz Center for Molecular Studies, Cincinnati*
Owner: *The University of Cincinnati*
Architect: *Frank O. Gehry and Associates—Frank O. Gehry, FAIA; principal; Jim Glymph, AIA, Hiroshi Tokumaru, Randall Stout, AIA, Michael Maltzan, Matt Fineout (design team)*
Architect of record: *BHDP–Carl Monzel, partner-in-charge; Terry Briggs, project architect; Tracy Santoro, George Kemper, Mike Fraser, Pam Lilley, Rick Howard, Greg Hutzel, Jim Knappenberger*
Associate architect: *Stallworth Architecture Inc.*
Consultants: *THP Ltd (structural); HAWA (mechanical); Earl Walls Associates (laboratory)*

No elevations are alike at the Vontz Center, on the edge of Cincinnati's medical campus. Glass expanses recede and protrude from the brick-paneled curved walls to enliven the north elevation (below), the east (bottom and right), and the west one (opposite). The latter opens onto a commons being completed by landscape architect George Hargreaves, the university's master planner.







CROSS SECTION THROUGH OFFICES AND ATRIUM LOOKING SOUTH

0 20 FT.
6 M.

1. *Entrance*
2. *Lecture hall*
3. *Atrium*
4. *Offices*





Center, he observes that Gehry often creates a happy tension between the "familiar Platonic solids and a set of spontaneous forms." Like the balletic hippos in Walt Disney's *Fantasia*, Sorkin notes Gehry's shapes "are dancing not-cubes and not-rectangles, distorted away from the familiar." Still, they don't lose their connection to reality.

Naturally, Gehry's bouncy solution for a scientific research center might raise some questions, such as How does the building function for its cancer and neurosciences researchers? Does it generate built-in construction and maintenance headaches? Does the unusual environment inspire scientists to be creative? Finally, what does the Vontz's idiosyncratic form suggest for future science buildings?

The story behind the bulge

As mentioned, the University of Cincinnati has been implementing a major plan in the last two decades to give some cohesion to its two campuses, the West Campus for arts and sciences and the East Campus for the medical center. Selecting Gehry was part of a process initiated in the 1980s to inject architectural oomph into a dreary setting. The president of the university, Joseph Steger; along with the dean of the College of Design, Architecture, Art, and Planning (DAAP), Jay Chatterjee; the university architect, Ron Kull, AIA; and the vice president of finance and administration, Dale McGirr, started pairing high-profile architects with local firms. So far designs by David Childs, FAIA, at SOM; Michael Graves, FAIA; Peter Eisenman, FAIA; Henry Cobb, FAIA, of Pei Cobb Freed; and Machado and Silvetti Associates have been completed. More such architects are slated for the future. Providing the "connective tissue" between the buildings is the master plan by George Hargreaves, a landscape architect from San Francisco and Cambridge, Mass.

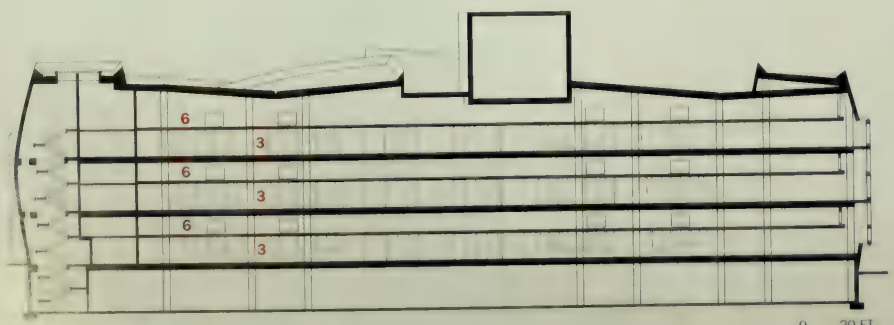
After Gehry was interviewed for the College-Conservatory of Music—a commission that eventually went to Cobb—he was proposed for the Vontz Center. A "gateway" building to the medical center's campus was desired. Donald Harrison, the senior vice president and provost for health affairs, particularly wanted the architecture to reflect the increasing importance of medical research at Cincinnati, where outside funding has tripled in the last 10 years. The site was at the edge of the medical campus, on land reclaimed from a parking lot and recreation field. Because the Vontz Center would be in a bowl between two hills, even its roof would be visible from a number of vantage points. Furthermore, it was surrounded



SECOND FLOOR



FIRST FLOOR



TION THROUGH LABS AND ATRIUM LOOKING EAST

A bent crossed-axis plan (left and below) with a central atrium (opposite bottom) provides the basic parti for the Vontz Center. The three floors of labs, an open grid of concrete columns, and pan-joist floors are served by interstitial spaces. A skylight illuminates the central atrium (opposite top).

1. *Entrance*
2. *Lecture hall*
3. *Laboratories*
4. *Atrium*
5. *Offices*
6. *Interstitial floors*





by other midrise brick buildings. University officials were reluctant to depart from this context, although they were already aware of Gehry's penchant for metal.

Working with a name

Donald Harrison admits to being suspicious of "signature" architects. Above all, he wanted to make sure the 150,000-square-foot building functioned. Fortunately for those concerned, Gehry was amenable to working with Earl Walls, the laboratory designer, who had made his reputation with Louis Kahn's Salk Institute in La Jolla and was consulting on two buildings at Cincinnati's medical center. Walls not only advocated modular, open-plan laboratories, he urged that interstitial space, that is, floors with a 6-foot, 4-inch clearance for mechanical and electrical distribution equipment, be part of the scheme.

"We just followed Walls' lead," says Gehry, even though the three floors of interstitial space would take a slice out of the $46 million budget, for which Albert Vontz, an alumnus of the university, donated $5 million. Yet Gehry acknowledged the need for flexibility allowed by the interstitial floors. If he had any thoughts about putting some metal on the outside (and initially he did), Gehry soon agreed that lower cost brick would be the way to go. He started working with sketches and models. "There was a new idea a week," recalls Harrison. At the beginning, the brick exterior walls were slanted and sloped. Then, Gehry added curves. "When I first saw them, I thought, 'uh-oh'," says Harrison. "They were our only extravagance," replies Gehry. "They are not functional—they are our equivalent of pilasters and columns. But," he goes on, "the bulges give the labs and offices a lift; they aren't just phony stuff on the outside." Harrison admits, "I'm always a functionalist. Yet as we went along, I fell in love with the building."

The interior is organized so that concrete columns are placed on a grid, 31 feet, 6 inches by 29 feet, 8 inches (although it varies: sometimes the grid is 21 feet by 29 feet, 8 inches) for the open-plan labs. Smaller appendages for offices run east to west on one axis while another bent axis goes north to south. The offices, not quite orthogonal in plan, are intimate, quirky but still spacious because their ceiling heights range from 14 to 16 feet at the windows to as high as 28 feet on the upper floors. Both labs and offices are organized around the central atrium, topped by a skylight, through which spirals a staircase like a strand of DNA. Because the atrium was a bit cramped, Gehry gave it spaghetti-like dimensions, arguing that the scientists would be encouraged to interact on this stage.

Scientific creativity and architecture

Can architecture foster creative scientific interaction and discovery? A panel discussion moderated by television commentator Charlie Rose addressed the topic when the Vontz Center opened in September. Earl Walls noted that Harrison had urged him to "keep an eye" on Gehry. In the end, Walls decided the building "is more alive than the Salk. Every turn you make stimulates you."

Two scientists on the panel were more cautious. Farid Murad, a Nobel Laureate and director of the pharmacology department at University of Texas in Houston, contended that the environment was mainly important in enabling researchers to work in peace and quiet and in minimizing fatigue. He wasn't sure that the architectural setting itself spurred creative synthesis. "Creative moments don't necessarily occur behind a desk," he stated, adding that some of his best ideas came to him while repairing automobiles. Still, Murad did suggest that "traffic patterns and accidental encounters lead to productive collaborations." Another panelist and Nobel Laureate, Paul Berg, the director of the biochemistry department at Stanford, said he didn't think creativity was diminished by architecture, but he

felt scientists who worked 18 hours a day should not be distracted by their surroundings.

Just to make sure that the scientists were neither distracted nor discomfited by too much natural light, automatic shades were placed on the lab windows facing east and west. And to prevent water from seeping in through the walls, waterproofing liners were installed inside the brick panels. "So far there are no technical problems," reports Kull. Only time will divulge how the building works, of course, but, for now, accounts are optimistic.

Solving it all

With regard to other expectations, the center fulfills its programmatic requirement to be an "icon." To be sure, the university may not have been thinking of a joint-is-really-jumpin' kind of symbolic statement, but a molecular biology center doesn't need to look like a city hall. Dynamic design seems apropos for the area.

The interior atrium is the most disappointing space architecturally, partially because the stair takes up so much room. As a result, one notices the heavy-handed quality of the wood capping on the balustrade, as well as the 1970s-looking white, blond wood and red-brick aesthetic. Nevertheless, the surprise of entering the bulging exterior and moving through the void to the rectilinear spaces of the labs is varied without being unsettling: you don't feel the need for the consistent expression of structure and program in the facade that was de rigueur in a purer modern era. The masking over of function and structure may be something of a lie, but it does not mystify; it only tantalizes. Part of the secret is in the scale: by breaking down the massing, Gehry has kept the building from being a disorientingly abstract sculpture. Another part of the secret is the retention of the material and the height of the surrounding buildings. Gehry has played the game, albeit unconventionally. Then again, the expanses of fenestration also help, imparting glimpses of activities inside. And you can find the front door.

The design doesn't advance the typology of science buildings. Gehry's architecture is clearly one-of-its-kind. This solution is not easily imitated, nor does it postulate a new parti (such as Kahn's now questionable served-servant spaces at Richards Medical Research Building in Philadelphia). Gehry's contribution, rather, shows you it is possible to take a straight geometrical grid and tamper with it inventively, without an untoward sacrifice to function. It is a fitting testament to the ongoing need for architects to be creative. Forget the brick box. And for now, let tectonics take a rest.

It should be added, that in all honesty, the one-off, or "signature," architecture and landscape design has not solved the chaotic quality of the whole campus. Too many tear-downs remain. Yet, in this mix, Gehry poses another irony: In spite of the admirable commitment by the university for denser, infill architecture, he shows it is possible to insert a free-standing object (with landscaping) and have it alter one's perception and memory of the place. ■

Sources

Computer system and software: *AutoCAD, Prima Vera*
Structural system: *Cast-in-place concrete frame*
Exterior masonry cladding: *Vet-O-Vitz Masonry Systems Inc. LaBrique Masonry Inc.*
Metal/glass curtain wall: [illegible]
Elastomeric roofing: *Carlisle*
Metal: *Zero Breeze Inc.*
Aluminum: *Waltek & Co.*
Glass: *Viracron*
Skylights: *LinEl*

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The offices (above) and conference rooms (opposite) at the Vontz Center receive ample daylight through changing ceiling heights and large expanses of glazing. As the labs (below) demonstrate, rectilinear labs are contained within the nonplanar exteriors. Counter surfaces are an acid-proof synthetic material, while cabinets are metal and wood. Floors are covered in seamless vinyl.



From the south, the Fisher Center appears as a series of overlapping roofs behind a greenhouse (top), while the north facade expresses its structure (below).

Bohlin Cywinski Jackson's science center for SIMON'S ROCK COLLEGE harmonizes with its rustic surroundings

By David Dillon





Most good buildings tell us about themselves and their circumstances, but few do it so clearly and unaffectedly as the new Fisher Science and Academic Center at Simon's Rock College in Great Barrington, Mass. Designed by the Wilkes Barre, Pa. office of Bohlin Cywinski Jackson, the center is a kind of three-dimensional essay in materials and construction in which individual architectural elements are called out and celebrated, yet the whole blends seamlessly with its rustic surroundings. Expository without becoming dogmatic, it also manages to be lively without being self-indulgent.

Simon's Rock, a semiautonomous unit of New York's Bard College, is a four-year liberal arts school for "younger scholars," meaning bright and restless high school students who have been turned off by traditional programs. It is the only institution in the U.S. that allows 10th graders to become full-time college students; no high school diploma is needed. Students can earn a bachelor of arts degree in four years, though most transfer after two years to other colleges. Small classes with an interdisciplinary and experimental focus are the norm. Because the students are so young—the average freshman is only 16—the Fisher Center had to be intimate and engaging. And because Simon's Rock is so small—approximately 350 students—it also had to serve the entire community, not just science majors.

"We told the architects that the building had to break down the perceived barriers between science and the other disciplines," explains Dean Bernie Rogers. "It couldn't be slick or institutional."

To reduce the center's bulk and cost, project architect Peter Bohlin, FAIA, tucked it into a hillside in the middle of campus known as "Siberia." Students use this area for everything from stargazing to kite flying and playing Frisbee, and weren't happy about losing their park to a building, even one that was desperately needed. Keeping its profile low and linear allowed Bohlin to preserve most of the open space as well as the magnificent views of the Berkshires.

From the south, or Siberian, side, the Fisher Center appears as a series of overlapping roofs, which seem about to sail off into the nearby trees. Only a small greenhouse hints at what's going on inside. On the north, however, it becomes mostly expressed structure: wood columns set at acute angles, as though buffeted by high winds; beams, trusses, and decking all exposed in a seemingly random manner that says "work in progress." The look is appropriately raw and unfinished, underscoring the spirit of exploration and discovery that is the soul of science, as well as the rationale for Simon's Rock. A physics teacher using the front entrance as a textbook on how buildings are put together would look right at home.

The lobby, a tall glazed space that glows like a lantern at night, leads to a 60-seat auditorium on one side and a two-level interior street on the other. The auditorium is used by everyone and is, therefore, turned slightly toward the center of campus, yet with its unpainted concrete walls, thick laminated beams, and intricate wood-and-steel truss, it has the same elemental feel as the rest of the building.

The laboratories, for physics, chemistry, biology, and ecology, occupy two levels, connected by a steel staircase that rises dramatically from the lobby. Housed in lively blue, yellow, and coral boxes, the labs

David Dillon is a RECORD *contributing editor and architecture critic for the* Dallas Morning News. *He lives in Amherst, Mass.*

Project: *Fisher Science and Academic Center, Simon's Rock College of Bard, Great Barrington, Mass.*
Architect: *Bohlin Cywinski Jackson—Peter Q. Bohlin,* FAIA, *principal for design; Allen H. Kachel,* AIA, *project manager; Heather Woofter, project architect*
Associate architects: *Architecture + —Frank M. Pitts,* AIA, *principal-in-charge; Paul R. Lewandowski, project architect; J. Michael Bergen,* AIA, *principal*
Engineers: *Ryan Biggs Associates (structural); Van Zelm Heywood & Shadford (MEP)*
General contractor: *Mullany Corporation, Leominster, Mass.*



FIRST FLOOR

1. *Main entrance*
2. *"Siberia"*
3. *Auditorium*
4. *Lobby*
5. *Computer lab*
6. *Physics lab*
7. *Research*
8. *Offices*
9. *Chemistry lab*
10. *Storage*



11. *West entry*
12. *South entry*
13. *Classroom*
14. *Biology lab*
15. *Ecology lab*
16. *Greenhouse*



SECOND FLOOR

N 0 20 FT. 6 M.





The glazed main entrance turns toward the center of campus and acts as a lantern at night to draw people into the building (far left); the student lounge is on the second floor (left); a steel staircase (above) ascends from the main entry.

The 60-seat auditorium is used for many purposes (below); pulling the catwalk away from the retaining wall allows light to penetrate to the core of the building (right).





erase all memories of antiseptic science buildings. Those on the second level are entered from a narrow catwalk that twists and turns like a village road. Pulling the catwalk away from the retaining wall allows light to penetrate the core of the building.

Between the labs, Bohlin inserted small classrooms and seminar rooms with tall windows that create the feeling of a tree house. Here and there he added what he calls "mixing and gathering spaces," where students and teachers can hang out and exchange ideas. "We tried not to program every square foot," he explains. "We want students to interact with the building and make it their own." The best of these fluid spaces is a second-floor lounge with comfortable chairs, a handsome maple table designed by the architects, and stunning views of fields, ponds, and the distant Berkshires.

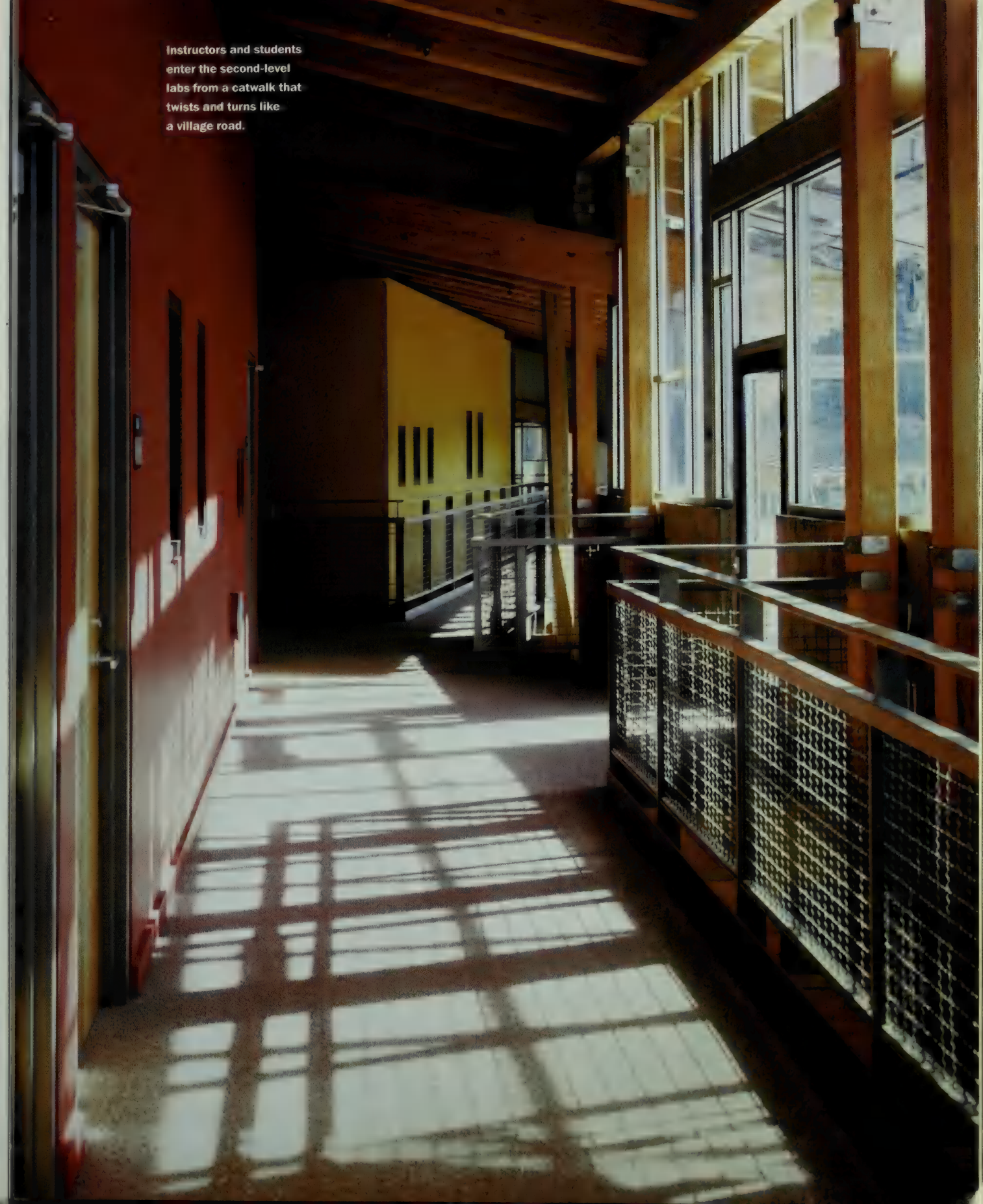
Simon's Rock was originally a 200-acre farm (the name derives from a favorite gathering place for the owner's children) that evolved into a country estate with gatehouses and carriage houses and small outbuildings for fishing and hunting. Despite a flurry of dreary Pizza Hut dorms and classrooms erected in the early 1970s, the campus has retained a loose, unstructured character. The original family house is still the spiritual center of the campus, where most of the important ceremonies take place. A boathouse has been converted into a health clinic; a chapel, moved from a nearby seminary, now serves as a concert hall.

The Fisher Science and Academic Center is the first new building at Simon's Rock in nearly 30 years, yet it takes most of its design cues from what went before. Its broad, sloping roofs with large overhangs; its exposed beams; and its shingle siding all belong to the existing campus vernacular, which it transforms, rather than mimics. It is a refreshingly clear and direct building that doesn't strut or preen or take itself too seriously. Instead, it unfolds gradually, section by section, detail by detail, like an equation; from certain angles it almost disappears into the landscape. Though modern in concept and execution, the Fisher Center celebrates its natural surroundings and the spirit of the institution that it serves. ■

Sources

Structural system: *Glulam by Unadilla*
Curtain wall and entrance doors: *Efco*
Wood siding and shingles: *Western Red Cedar*
Wood windows: *Eagle*
Wood doors: *Weyerhauser*
Metal: *Englert*
Resilient flooring, acoustical ceiling, suspension grid: *Armstrong*
Interior ambient lighting: *Zumtobel*
Cabinetwork: *Wood Metal*
Paints and stains: *Benjamin Moore*
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Floor and wall tile: *American Olean*

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Instructors and students enter the second-level labs from a catwalk that twists and turns like a village road.



To differentiate between new and historic fabric, the architect detailed a new balcony and stair using materials that contrast with the existing wood and stone.

Kieran Timberlake & Harris revamps Yale's historic BERKELEY COLLEGE, stirring up controversy and clashes over old and new design.

By James S. Russell, AIA

Architect James Gamble Rogers' slate-roofed, carved-stone structures for Berkeley College at Yale University once enfolded a world of almost unimaginable gentility. Though much of the country was wracked by the Great Depression when Berkeley was completed in 1934, undergraduates wore jackets and ties to meals taken in a magnificent Oxford-inspired dining room, where waiters in uniforms with white collars and aprons served them. At leisure, students gathered around a grand piano or a record player, gifts of alumnus Paul Mellon.

T-shirts and backpacks have replaced the jackets and ties, women have moved into the once male-only precincts, and a bowl of cereal now frequently constitutes a meal. Yet the splendor of the dining commons remained intact, if worn, when Philadelphia architect Kieran Timberlake & Harris (KTH) took on the challenge of upgrading the college. As part of what Steve Kieran, FAIA, KTH partner-in-charge, considered a deft and discreet upgrade, his firm added a small mezzanine. To denote the contemporary nature of the insertion, his team detailed it with contrasting materials, and introduced a new fluidity of space by adding an eyebrow window and inserting an opening onto an elaborate, historic lounge.

Even before the balcony was built, this new element became a cause célèbre at Yale. Labeled a travesty by critics, it inspired a petition for its removal and an editorial denunciation in the *Yale Daily News*. It attracted attention from the *Wall Street Journal* and elicited disapproval from Vincent Scully, Yale's celebrated professor of architectural history, and architecture school dean Robert A. M. Stern, FAIA.

The battle of the balcony is only the latest clash in the long-running debate over how institutions can keep a landmark building vital while preserving the original work of art. Our era demands accommodation of stringent life-safety regulations, access for the disabled, new technologies, and—in the case of college residences—an expanding panoply of social and recreational possibilities. (Singing around the piano no longer cuts it, even at Yale.) Can contemporary needs and expression find a place within cherished traditional design?

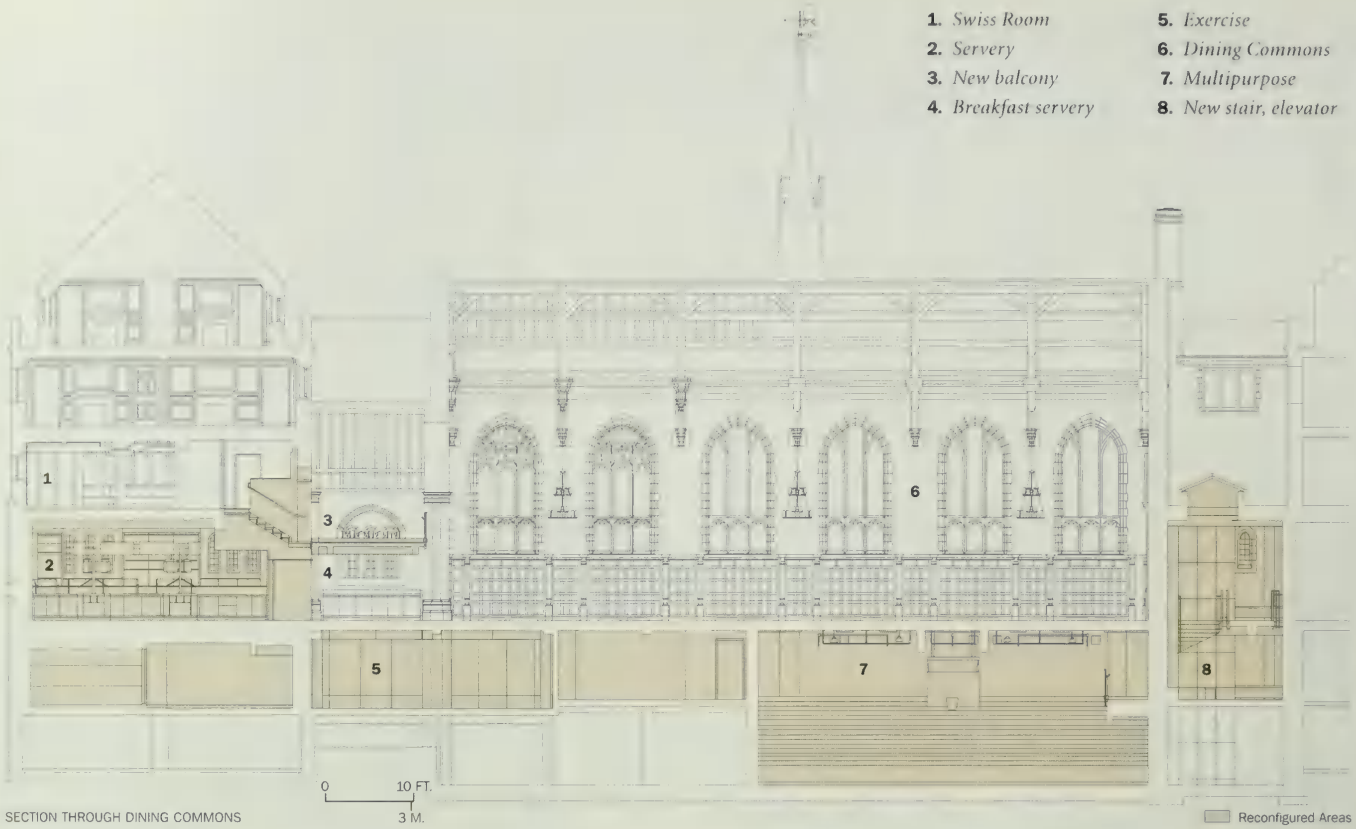




Berkeley College was the eighth of 11 residential colleges underwritten by Standard Oil heir Edward Harkness in a 1930s building spree. Recalling the isolation of his Yale years in a New Haven boarding house, Harkness offered the university the then-vast sum of $15.7 million to rebuild its student housing in the residential-college mode of Oxford University. His gift enabled Yale to house students in manageable units of about 200, sharing garden courtyards, elegantly appointed lounges, dining halls, libraries, music rooms, and game areas with a master, dean, and fellows. All these features were intended to nurture both lifelong friendships and academic achievement.

With additional gifts, mainly from Harkness, most of Yale's academic structures rose in a relatively short period of time, meeting a very high standard. Rogers designed most of them. By the mid-1930s, Yale possessed an architectural quality and completeness arguably unequaled in America.

Project: *Berkeley College Renovations, New Haven, Conn.*
Owner: *Yale University*
Architect: *Kieran Timberlake & Harris—Stephen Kieran, FAIA, partner-in-charge; James Timberlake, FAIA, Samuel Harris, AIA, Christopher Macneal, AIA, Amelia Floresta, AIA, Steven Johns, Patreese Martin, Ron Crawford, Clifton Fordham, Yves Gauthier, Kimberley Jones, Vanessa Keith, Catherine Moy, Lisa Neely, Alix Peck, Jane Pfaff, John Poros, Dana Reed, Marie Reichardt, Nicole Rittenour, Anne Roderer, Amanda Sachs, project team*
Engineers: *Robert Silman Associates (structural); Lev Zetlin Associates (mechanical, electrical, plumbing)*
Construction manager: *Linbeck*



SECTION THROUGH DINING COMMONS

When an institution possesses a campus of such singular character and when it has graduated thousands of influential people who cherish their highly individual memories, the prosaic process of bringing older structures up to date can resemble tiptoeing through a minefield. To many teachers, students, and alumni, altering the buildings means tampering with the university's very identity.

A rare architect who actually cares how cavity-wall drainage works and who can derive aesthetic inspiration from the performance of materials over time, Kieran Timberlake & Harris seemed an excellent choice for the first of the Rogers-era colleges to receive a long-overdue rehabilitation. The extraordinary high quality of the 1934 structures meant that much of the building fabric needed little more

CAN CONTEMPORARY EXPRESSION FIND A PLACE WITHIN A CHERISHED TRADITIONAL DESIGN?

than spot repairs. Still, almost all the $35 million budget (made possible by a gift of Ann T. Bass and Robert M. Bass) went to conventional historic restoration. Much of the work, such as air-conditioning in public spaces, sprinklers throughout, wheelchair ramps, and screened trash-disposal areas, called for a high order of sophisticated detailing and design discretion.

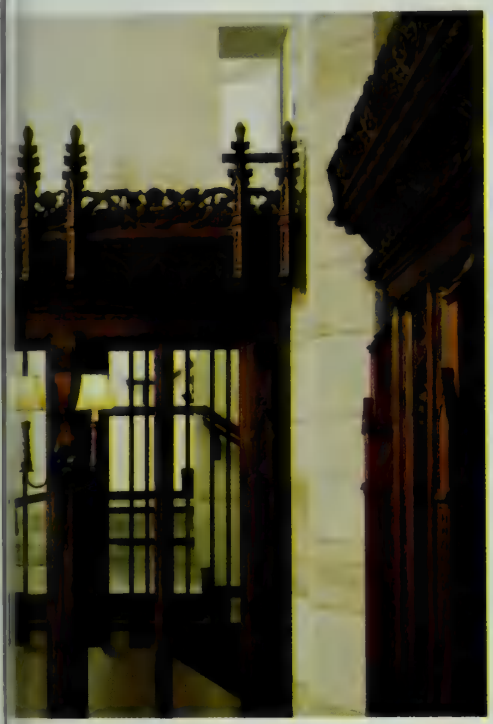
Among the subtlest interventions was the reconfiguration of the floor plans. KTH created more single dorm rooms while maintaining a bed count higher than Rogers had originally designed. Using alarmed communicating doors, the architect also assured two means of egress from each suite, while permitting building managers to reconfigure suites (by switching the door alarms and locks on and off), to accommodate groups of varying size.

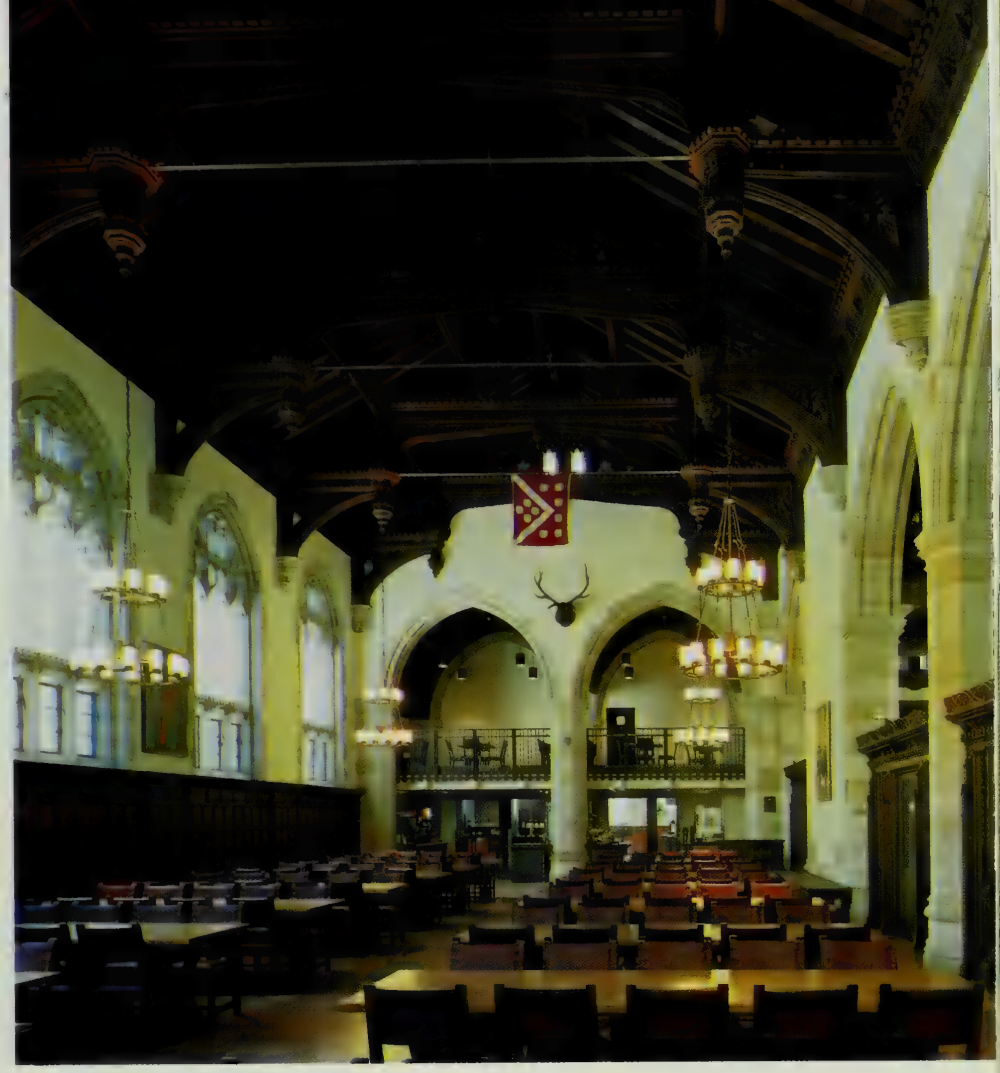
The thousands of panes of leaded art glass set in standard steel sashes presented the greatest technical challenge. Replacing the windows with insulated units in aluminum sashes would have met current energy codes while depriving the building of a key aspect of its original design personality. From neither a functional nor aesthetic point of view could the rusted sashes be restored. The architects considered a weatherstripping retrofit and the equivalent of interior and exterior storm windows, and finally settled on an interior-glazed vented steel frame that matches the existing windows' exterior profiles. This alternative nearly equals the energy performance of insulated units, yet aesthetically, it is barely distinguishable from the originals.

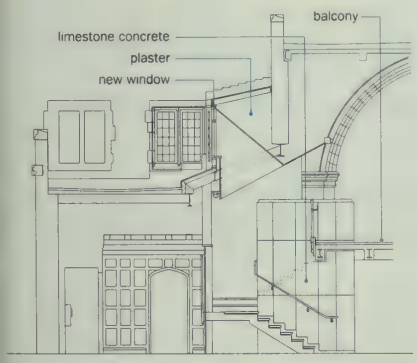
Following the mandate of a planning study by architect Herbert S. Newman and Partners and consultants at Bovis Management Systems, KTH placed new social and recreational spaces in the basement. A laundry, an exercise room, and a multipurpose area surround a small cafe. In converting former storage space, the architects made no attempt to emulate lofty above-grade grandeur. Instead, they exposed brick walls, cut discrete openings for skylights, cast quotations from the college's namesake George Berkeley (a figure prominent in Yale's early history) into the black stones that trim the tinted-concrete floor, and disguised surface-mounted conduits, sprinklers, and light fixtures with overlapping grids of blackened metal.

Only two contemporary elements intrude into the areas of the building most richly detailed by Rogers. KTH placed a new stair leading to the basement social spaces adjacent to the Dining Commons, filling a former cloakroom and washroom and thereby avoiding the alteration of important Rogers-designed areas. The stair's combination of concrete, steel, and stone eschews neo-Rogers style, proclaiming

The controversial mezzanine was added at the far end of the Dining Commons (right). The stair is semiconcealed (below) and skylit (bottom).



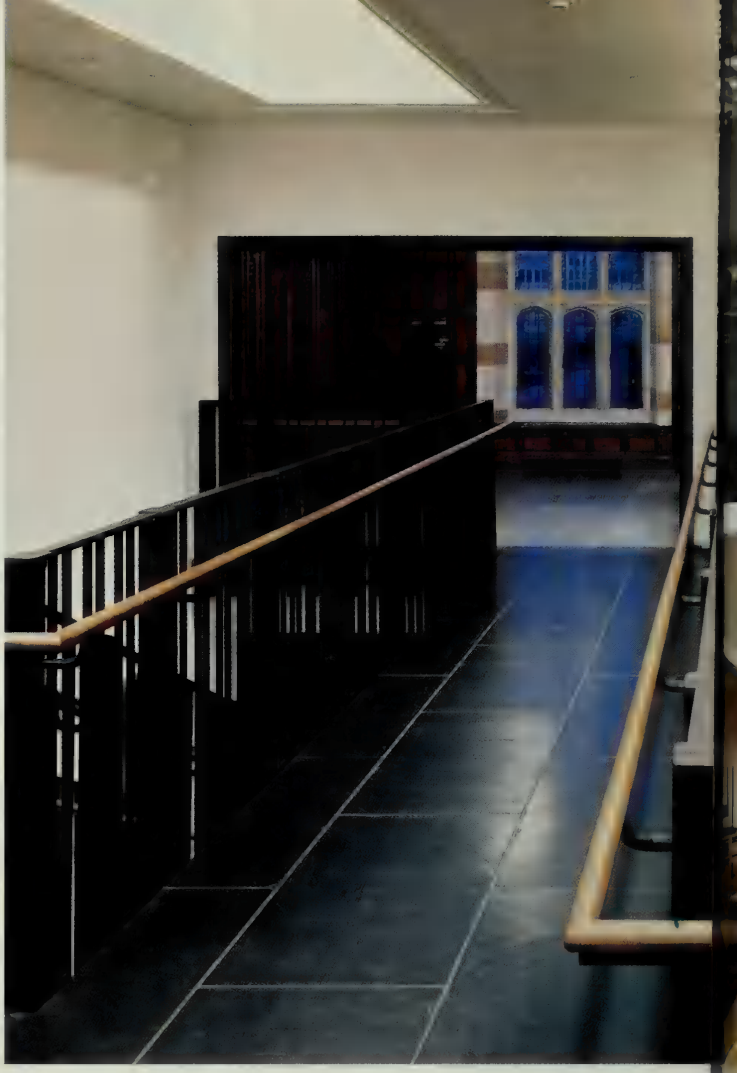




NEW STAIR AND BALCONY







A niche with a view (above) was added at the new stair (above right), which leads to a new cafe (opposite, top left) and multipurpose room (opposite, top right). Battens, holding insulation, screen stairs and chair storage. Wood panels reverse to dance-studio mirrors.



instead a design approach akin to that of Carlo Scarpa, the Italian architect known for modern insertions into historic buildings, such as the Castelvecchio museum in Verona.

The stair has attracted little criticism. By contrast, the inclusion of the balcony in the Dining Commons, which shares the stair's design vocabulary, was excoriated because it altered an important Rogers-designed space. Kieran says it was needed to reconfigure the kitchen and food-service areas. It also added 30 seats and improved access to the Swiss Room, a period interior given to the college for private dining.

Now that Kieran's work is complete, Yale has given it mixed reviews. Robert A. M. Stern professes himself happy with the result. "What they did was not all that bad," adds Scully. Robert Irving, an architectural historian who led the protesters, remains an unrepentant critic, still hoping Yale will remove the mezzanine, which he calls, "a major and irrelevant architectural intrusion in materials, style and proportions, as insensitive as was the Kodak mural in Grand Central Terminal's main hall."

Tiny as it is, the mezzanine has become a larger symbol in the preservation debate, especially as Yale has contemplated alteration and even destruction of a number of older structures. Says Scully, "Should we be able to butcher really beautiful buildings to serve changes that are not fundamental? If we change the building every







time we make a slight functional change (which is how he regards the mezzanine), pretty soon there won't be much left."

"A generation ago, the world was far too ready to demolish and dramatically alter our past," says Kieran. "Today, the pendulum has swung too far the other way. We place all too many buildings and landscapes beyond time, where no change is acceptable." He wonders whether the university today would have demolished the substantial 19th-century buildings that Berkeley replaced, or whether it would now build anything as daring as Paul Rudolph's celebrated—and still controversial—1963 Art and Architecture building.

SHOULD RENOVATIONS RECOGNIZE "REAL TIME" OR "LEAVE NO FINGERPRINTS"?

A further irony, Kieran adds, is that "Gamble incorporated a multiplicity of styles and times in the design of Berkeley," ranging from 16th-century English Tudor to 19th-century American-style Gothic. "We had an opportunity to add real time to the design in the way we addressed program needs."

"No one wants to harm these buildings," observes Thomas H. Beeby, FAIA, of the Chicago firm, Hammond, Beeby, Rupert & Ang. He has for several years advised the corporate body governing Yale on architecture. "But surveys of the faculty show that user groups want first-rate facilities. So you have a convergence of not necessarily common interests."

Irving argues that the preservation community does not want the landmarks to be unchangeable museums. Instead, he argues, new functions should be placed "behind closed doors," not intermingled with historic fabric. That no contemporary expression can be allowed to coexist with historic expression, Kieran feels, is to embalm the buildings. Must new spaces, functions, and design be relegated only to leftover spaces, he asks. Out of the Berkeley controversy has apparently come a new consensus if not a new orthodoxy: architects are to leave "no fingerprints." Kieran calls this "the dogma of total retention."

Beeby, for one, sees neither side of this argument prevailing: "To be fair to the buildings, you have to deal with each situation as you come to it. I think, in the end, most architects are forced to do a little bit of everything." Expect more aesthetic fireworks. ■

Sources

Slate and stone: *Vermont Structural Slate, Indiana Limestone*
Replacement windows: *Crittall Steel Windows*
Glazing: *Rohlf's Studios*
Custom steel doors and frames: *E. H. Friedrich*
Stile and rail wood doors and cabinets: *Modern Industries*
Hardware: *Best, Stanley, Rixon, LCN, Von Duprin, Detex Haëfele*
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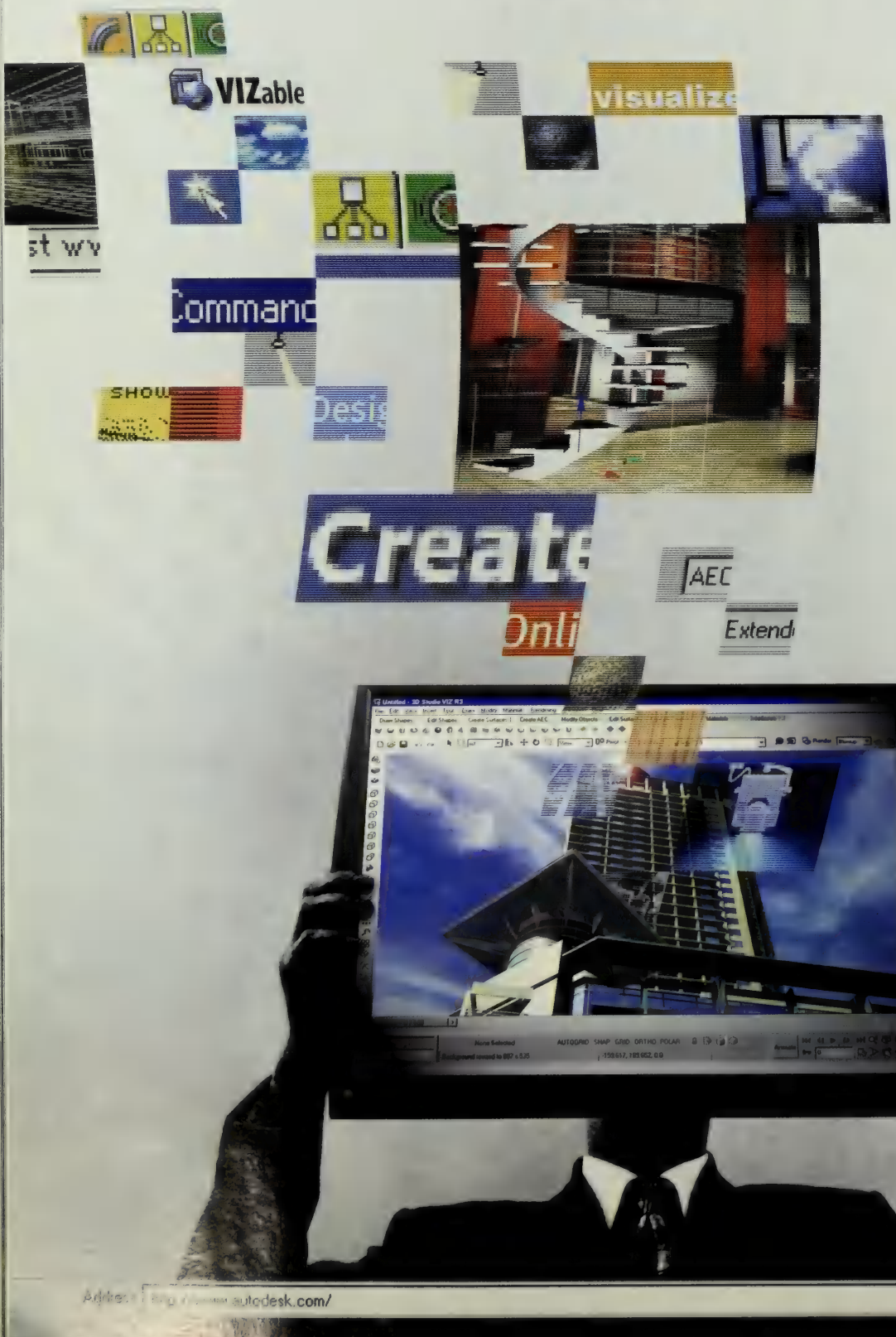
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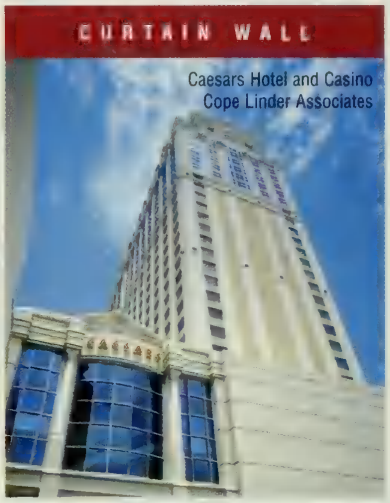
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1.

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Koning Eizenberg Architecture and Kelly Wearstler Interior Design bring a trio of postwar buildings back to life as the Avalon.



2.

Chicago

Daniel Burnham's Reliance Building trades its office cells for guest rooms with the help of McClier and Antunovich Associates.



3.

Seattle

Minimalist spaces mix with organic forms and a few campy touches to create a small hotel for style-conscious travelers on a budget.



4.

Montreal

Lemay Michaud Architecture Design shows how the small floor plates of a 1960s office tower work just fine as a new hotel.

By Clifford A. Pearson

It may have started with Ian Schrager, who opened Morgans in New York City in 1984 and then the Royalton in 1988, but the boutique hotel wave has now hit both coasts and looks a lot like a full-fledged movement. Inspired by Schrager and other hip hoteliers such as André Balazs (the Mercer Hotel in New York City and the Chateau Marmont in Los Angeles) and Anouska Hempel (Blakes and the Hempel in London), a flock of young entrepreneurs is taking the boutique concept to smaller, less trendy cities where a runway is still what planes land on. In the process, this second generation is finding intriguing ways of adapting the boutique model to fit new markets and making it available to design-hungry travelers who can't afford top-of-the-line.

The second half of the 1990s has been a boom time for all hotel construction. After hitting bottom in 1991 when only $1.775 billion of construction contracts were in place, hotel building jumped to $8.674 billion in contracts in 1998, according to the F.W. Dodge Division of the McGraw-Hill Companies. Although construction dipped slightly to $8.134 billion in 1999 and is forecasted by Dodge to ease a little further to $8.083 billion this year, it remains at a plateau that is more than four times the nadir reached during the last recession.

Boutique hotels' share of the total market "is tiny but growing," reports Nancy Novogrod, editor in chief of *Travel & Leisure*. Novogrod sees boutique hotels "fanning out geographically" from their epicenters in New York and Los Angeles and affecting larger hotels and chains. "Their sense of style and design is having a significant impact on the whole industry," she says. And Novogrod doesn't think these quirky inns are just a passing fad. "The small hotel has always existed in places like London. The new boutique hotels are a response to the mass-produced experience. They're trying to deliver a more authentic experience, along with a sense of place and intimacy."

Some of the large hotel groups have responded by developing their own lines of hip establishments. For example, giant Starwood Hotels & Resorts Worldwide (which owns the Westin and Sheraton chains and many other properties) is rolling out a string of W Hotels that are too large to be considered boutique but clearly borrow the genre's sophisticated use of high design. Targeted at style-conscious business travelers, the first W Hotel opened in New York in December 1998 and quickly drew hordes of 20- and 30-somethings who turned its comfy lobby into an all-night hangout. Key ingredients in the hotel's success include a casually elegant design by David Rockwell, a hot restaurant run by Drew Nieporent (of Montrachet, Nobu, and TriBeCa Grill fame) and a





The decor of the lobby of the International House in New Orleans changes seven times a year (above and right).



Chip Conley turned an old motor lodge into the Hotel Del Sol (above) and built a new luxury campground called Costanoa (above right).

celebrity-infested Whiskey Bar run by Rande Gerber (who also has the Skybar in Los Angeles and other Whiskey Bars in New York to his credit). And like many boutique hotels, the first W inherits much of its character from the older building that was renovated to house it. By borrowing the skin of an early 20th-century building, the hostelry quickly assumes a certain patina and individuality that otherwise would take years to develop.

Finding the essence of New Orleans

Independent developers like 34-year-old Sean Cummings in New Orleans, however, aren't worried about the big guys squeezing them out. "A real boutique hotel is by definition a one-off," states Cummings, whose 119-room International House occupies a 1906 bank building across Canal Street from the French Quarter. Opened in 1998, International House is the first in what Cummings hopes will be a collection of unique hotels around the country. "Real innovation doesn't come from large organizations, it comes from individuals," asserts Cummings. "The trick is to build things that can't be readily repeated. Chains, on the other hand, are based on the co[illegible] repetition."

At International House, Cummings wanted to introduce guests to the peculiar ways of his home town, not give them plagiarized Philippe Starck. "This hotel is fundamentally about its time and place—the culture and spirit of New Orleans." This is expressed, says Cummings, in the building's recreated lanterns on its street facade, the restored 23-foot-tall pilasters in its lobby, and the guestrooms' 12-foot ceilings, which let the steamy local air [illegible] out of the way.

While the building's bones follow the timeless lines of tradi[illegible] architecture, the hotel lobby's decor changes seven times a year to call attention to local events or customs. So artwork, flowers, and colors in the lobby morph from Mardi Gras (late January through early March) and St. Joseph's Day (mid-March) to Summer Dress and All Souls/All Saints Day (early November). "The lobby is a stage where we can observe local rituals and customs," explains Cummings.

Working with New Orleans architect Brooks Graham and the interior design firm Chrestia, Staub & Pierce, the developer restored the building's historic exterior, while creating a more contemporary interior. "Like New Orleans itself, the hotel mixes old and new," says Cummings. Two of the new pieces are the Lemon Grass Café, a French-Vietnamese restaurant by chef Minh Bui, who epitomizes the changing ethnic mix of southern Louisiana, and Loa, a Voodoo-inspired bar that echoes recent interest in some of the lesser-known aspects of African-American culture. "Loa" means "divine spirit" and the bar, which is usually packed with people, "represents the sexy, sophisticated side of Voodoo," says Cummings.

Hotels that jump off the page

In San Francisco, Chip Conley has spent the last 13 years applying consumer-marketing principles to the boutique-lodging business. Conley, who is the president of Joie de Vivre Hospitality, which owns or runs 16 small hotels and five restaurants and bars in the Bay Area, believes that establishing brand identity is the key to creating a successful boutique hotel. "Brand identity reflects the identity of the guests," says the 39-year-old entrepreneur, who earned an MBA from Stanford University.

Conley and his staff model each of the company's hotels on a particular newsstand magazine. "We use the magazine to create an identity for the hotel." For example, when Conley bought a down-on-its-heels



The old Chemists Club in Manhattan is being converted into the Dylan Hotel, with restored stained glass and Jeffrey Beers interiors.





motel in San Francisco's rough Tenderloin district in 1987 and turned it into the oh-so-hip Phoenix Hotel, he saw it as a check-in-and-spend-the-night version of *Rolling Stone*. "We came up with five words to characterize *Rolling Stone*—young, irreverent, funky, adventurous, and hip," says Conley, and then incorporated these traits in the design of the hotel. The result is a small hotel with swoopy '50s-style graphics, a pink-and-turquoise color palette, and Caribbean-inspired decor.

In 1995 Conley bought the Orchard Hotel at Union Square in San Francisco and then spent $800,000 turning it into the 94-room Hotel Rex. "The Orchard was pretty generic," remembers Conley, "but it had an antiquarian bookstore that became the inspiration for the new hotel." So the developer used *The New Yorker* as the brand identifier and gave the Rex a clubby, literary-salon kind of feeling. "We look for anything indigenous to the property to use in creating a new identity," states Conley. "We ask ourselves, 'What is the kernel or soul that we can develop?'"

The Hotel del Sol, a recent project by Joie de Vivre, had been a motor lodge with a sleazy reputation. Repainted in south-of-the-border colors and given kitsch cachet by lights strung in palm trees and a mural of sunflowers, the hotel is now what Conley describes as "*Martha Stewart Living* meets *Islands* magazine."

Moving the boutique concept out of the city, Conley last year opened Costanoa, a rustic lodge and camp on the San Mateo County coast about an hour south of San Francisco. Aimed at cappuccino-sipping folks who drive sport-utility vehicles, Costanoa has a 40-room lodge, small Craftsman-style cabins, and furnished "tent bungalows," along with a "gourmet general store" and spa services. Guests can imagine they're living in the style found in the pages of *Outside* magazine.

Joie de Vivre has four projects in development, reports Conley. Magazines waiting to be turned into hotels include *Wired* and *Fast Company*, which will go on line in Silicon Valley, and *Metropolitan Home*, which will establish residence on San Francisco's waterfront in two years. "We don't have a *Wallpaper* or *Details* hotel," says Conley, "but those would be more in Philippe Starck's territory and I'm not sure we want to go there." Conley's plan is to "branch out beyond hotels" and apply the boutique concept to everything from day spas to campgrounds. "It's boutique if it offers the customer an identity refreshment. What we do is create escapes—whether it's a hotel, a resort, or a restaurant."

Room at the top

While most new players in the boutique market enter at the lower price points or in less developed locations, Morris Moinian, a 38-year-old businessman who got his start in fashion and real estate, is trying to break in at the top. The Dylan, Moinian's first hotel, will open in New York City early this year in a 1903 Beaux-Arts building that had been the Chemists Club and will have rooms for $300 to $1,000 a night. The 108-room Dylan will have restored details such as stained-glass windows and a grand staircase to go along with new interiors by architect Jeffrey Beers. Moinian is bullish on boutique hotels and says they can work in all kinds of places, as long as they offer unique lodging experiences and an alternative to the cookie-cutter approach of the large chains.

The new wave of hoteliers may not be introducing major innovations to the boutique model, but it is softening some of the attitude and making hip easier to take. Responsive to local cultures and tighter budgets, this generation is giving the boutique hotel a more popular face. ■

Avalon Hotel
Beverly Hills, California

1 **KONING EIZENBERG AND KWID RECASTS THE BOOMERANG CHARM OF A 1950S HOTEL IN A HOME AWAY FROM HOME FOR THE WIRED GENERATION.**

By Clifford A. Pearson

Architect: *Koning Eizenberg Architecture—Hank Koning, FAIA, Julie Eizenberg, principals; Jim Jackson, Dan Parks, Fernando Bracer, Norah Edelstein, Carole Chun, Tim Andreas, project team*
Interior designer: *kwid—Kelly Wearstler, principal*
Consultants: *Mia Lehrer & Associates (landscape); ReVerb (graphics); Vortex (lighting)*
Engineers: *Nabih Youssef & Associates (structural); M.O. Engineering (mechanical/electrical)*
Contractor: *Eric Hinds Construction*

Construction cost: *$6 million*
Size: *88 guest rooms in three buildings; 60,000 square feet*
Date opened: *May 1999*

Sources
Windows: *Fleetwood*
Skylights: *Bristolite*
Swan chairs: *Designtex*
Platner chairs: *Clarence House*
Eames storage units and George Nelson bubble lamps: *Modernica*
Bathroom sconce: *Artemide*

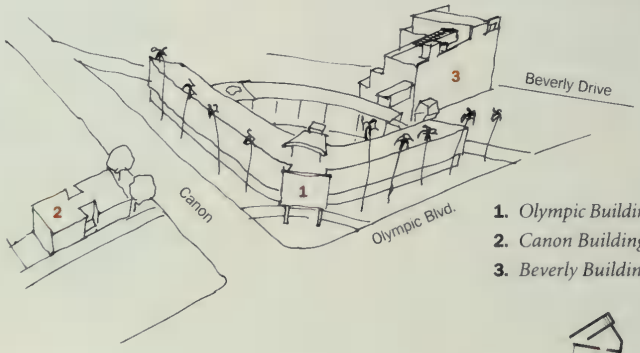
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Program
Turn a rundown hotel in a residential section of Beverly Hills into an up-to-the-minute retro-chic hangout for people in the fashion and entertainment industries. Originally called the Beverly Carlton, the hotel comprises a trio of buildings (the Olympic, the Beverly, and the Canon), each facing a different street and dating from a different part of the postwar era. Although the Canon Building began life as an apartment block and none of the three buildings is physically connected to its mates, the structures have long functioned as one hotel.

The hotel has history. Marilyn Monroe lived in Room 305 for two years, and episodes of *I Love Lucy* showed Ricky and Lucy checking in. But the Beverly Carlton had lost its glamour and most of its charm by the time Brad Korzen and Jeff Elowe, two young developers, bought the property in 1997.

Transforming the place into the Avalon, architects Hank Koning, FAIA, and Julie Eizenberg worked with interior designer Kelly Wearstler to recapture the original postwar spirit while creating a free-flowing character. In the process, they upgraded all mechanical and electrical systems.

Solution
Making three separate buildings feel and work as one hotel was the biggest challenge. Painting all the structures a distinctive seafoam



1. *Olympic Building (1948)*
2. *Canon Building (1962)*
3. *Beverly Building (1953)*



1. *Entry*
2. *Restaurant*
3. *Kitchen*
4. *Gym*
5. *Parking*
6. *Cabana*
7. *Office*
8. *Reception*



green was a simple but effective way of linking them visually. The architects didn't stop there. They pared down the architecture—stripping away modifications such as canvas awnings and French doors—and simplified the procession throughout the hotel. "We needed to establish a coherent identity for all three buildings," explains Eizenberg.

At the same time, each building came with its own set of design issues. The architects created a new face for the hotel by replacing a damaged cement-tile mural on the front of the main building (the Olympic) with a new glass-tile mural. They also expanded the lobby and dining area and opened up views to the pool by adding curving glass walls and moving the elevator from the entry to a location beyond the reception desk. A









The hotel's lobby, which is in the Olympic Building, was gutted and then redesigned with a new terrazzo floor and a mix of vintage and contemporary furniture. A guest room in the Beverly Building (below) has its own outdoor space.





blue terrazzo floor now sweeps through the lobby and out to the pool. Today, vintage sofas and lucite chairs from the '50s blend with a new copper-topped reception desk and a cluster of bamboo poles to create an updated mid-century modern sensibility.

The Beverly Building, which sits across an alley from the Olympic, was improved with new sun-control louvers and landscaping on its street facade and a new metal trellis and patio partitions on its south elevation. White metal arbors and a landscaped roof terrace make the two penthouse suites here the best rooms in the hotel.

To add street presence to the two-story Canon Building, the smallest and oldest of the hotel's three components, the architects designed a new canopy with a bubble skylight and worked with landscape designer Mia Lehrer to create a new ramped entry lined with bamboo and tropical plants.

The strategy for the hotel's guest rooms, interior designer Wearstler says, "was to create rooms that feel like apartments." Although the 88 guest rooms range in size from 400 to 1,000 square feet (for the penthouses) and include 28 different floor plans, Wearstler used a common palette of cool colors and natural fabrics to establish a shared identity. "In a hot place like L.A.," explains Wearstler, "it's nice to come back to a room that feels cool."

The rooms combine furniture from the '50s such as George Nelson lamps, Noguchi tables, and Eames storage units with headboards and cabinetry designed by Wearstler. A coffeemaker, fax machine, television with VCR, stereo, and modem hookup handle all the entertainment and telecommunications needs of today's laptop-toting professionals. As Koren, one of the owners, puts it, "We wanted you to feel like you're in a friend's apartment, one who has a really good interior designer."

Commentary

The odd arrangement of three separate buildings in one hotel actually contributes to the Avalon's quirky charm. Because each piece is small (46 guest rooms in the Olympic Building, 26 in the Beverly, and 16 in the Canon) and none is more than three stories, the three buildings work as a neighborhood hotel. Indeed, the place fits its surroundings so well that first-time visitors often drive right by it.

While some boutique hotels are designed within an inch of their lives and seem too hip to breathe, the Avalon has a relaxed demeanor that's stylish without being intimidating. New elements such as a copper-clad elevator tower and metal-frame patio dividers on the Beverly Building are clearly contemporary and ensure that no one takes the '50s theme too literally or too seriously. ■



Metal sunshades over pool cabanas replaced old canvas awnings (right and below). The kidney-shaped swimming pool, the focal point of the Olympic Building, was repaired and resurfaced.





Hotel Burnham
Chicago

2 **MCCLIER AND ANTUNOVICH ASSOCIATES RESTORE THE GLORY OF THE HISTORIC RELIANCE BUILDING AND REINCARNATE IT AS A HOTEL.**

By Blair Kamin

Owner: *Canal Street Partners LLC*
Developers: *Baldwin Development Co. with R.M. Chin and Associates (Phase 1); McCaffrey Interests, Mansur & Co., and Granite Development (Phase 2)*
Architect/Restoration architect: *McClier—Thomas Rossiter, AIA, principal-in-charge; Christopher Martersteck, AIA, project manager; T. Gunny Harboe, AIA, restoration architect; John Bowers, AIA, project architect; Dina Barthel, Doug Gilbert, Elizabeth Trail, project team*
Architect (Phase 2): *Antunovich Associates—Joe Antunovich, AIA, principal-in-charge; Jeff Zelisko, project manager, David Kelley, project architect*
Hotel interior designer: *Intra-Spec—Susan Caruso, principal; Caroll Enriquez, Chris Porter, project designers*

Construction cost: *$30 million*
Size: *122 guest rooms, 15 stories*
Date opened: *Fall 1999*

Sources
Terra-cotta: *Boston Valley*
Double-hung windows: *Pella*
Storefront: *Kawneer*
Stone floor in lobby: *Walker Zanger*
Resilient flooring: *Armstrong*

WWW *For more information on the people and products involved in this project, go to* **Projects** *at:* **www.architecturalrecord.com**

Program

The Reliance Building, a seminal work of modern architecture from 1895, was derelict by the early 1990s. Fronting State Street, which had hit on hard times, and suffering from a neglectful owner, the Daniel Burnham-designed landmark had only six tenants, including a tea-leaf reader. Its once-glistening white terra-cotta facade was covered with soot and clumsy fire escapes.

In 1994, the city of Chicago took control of the Reliance, initiating a process that would bring this landmark back to life. The first phase of work stabilized and cleaned the structure's dirty, crumbling exterior. Eventually, a team of developers stepped in to convert the former office building into a luxury hotel operated by the Kimpton Group.

The hotel, which opened this past fall and includes a ground-floor restaurant, is geared toward both business travelers and tourists.

Solution

Working with the precision of detectives, restoration architects at McClier replaced 2,000 of the building's 14,300 pieces of terra cotta and made new molds for more than 130 types of terra-cotta panels. They also replaced a long-missing terra-cotta cornice with a

Contributing editor Blair Kamin is architecture critic for the Chicago Tribune.



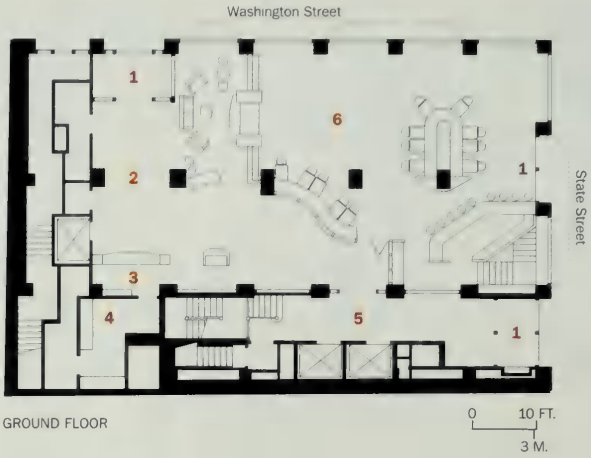


The new hotel is part of a revived State Street (above). Prior to the restoration, the elevator lobby bore little resemblance to its old self (left). Today, it is once again a remarkable space (opposite).



A restaurant (bottom right) and hotel lobby (top right) have been created on the ground floor. Old office areas are now guest rooms (opposite top), but the historic stair and many of the original corridors have been preserved (opposite bottom).

1. *Entry*
2. *Hotel lobby*
3. *Reception*
4. *Office*
5. *Historic lobby*
6. *Lounge*
7. *Guest*
8. *Storage*



new, lightweight cast-aluminum version, reconstructed bronze window-bay bottoms, and replaced the original windows with new energy-efficient double-glazed ones.

In the second phase, McClier worked with Antunovich Associates to convert the old office building into a new hotel. They identified missing materials in key areas, such as the original storefront facade, with its brown-granite cladding and neo-Gothic bronze decoration. They also recreated the original look of the office-building lobby, with its exotic combination of Italian, French, and domestic marbles.

The architects strove to balance the functional requirements of a modern hotel with the formal integrity of a landmark office building. They revived the Reliance's old lobby on State Street while creating the hotel's main entrance on a side street. In addition, they turned a former ground-floor retail space into a restaurant.

Upstairs corridors provide a glimpse back to turn-of-the-century office-building interiors. While carpeting and other typical hotel touches are new, the design team restored terrazzo tile floors, white marble wainscoting, and mahogany door and window frames. Best of all, hotel room numbers, painted on translucent glass doors, stylistically recall the office numbers that once graced the R[illegible]

By inserting two new fire stairs [illegible] ding, the architects were able to preserve the openness of the Reliance's richly detailed internal staircase, which graces upper-floor lobbies like a piece of sculpture.

The guest rooms, while relatively small, proved surprisingly adaptable to their new role. There was no need to knock down walls between former office cells to create new rooms. The decor now echoes the lightness of the exterior, especially with drapes that are blue on the inside and white on the outside.

Commentary

What is remarkable about this project is the way it has transformed the 104-year-old Reliance without compromising the building's brilliant original design. The architects returned the building's exterior to the ethereal glory that inspired postwar modernists—"a thing of space rather than stuff," the late architectural historian William Jordy described the Reliance.

The new interior is also successful. For all its bold use of color, the lobby never becomes florid and excessive. Like the exterior, the inside spaces exhibit a stunning sense of transparency, with the Gothic metalwork of the new elevator grilles and an enormous interior wall of glass combining to make the lobby, the new cafe, and the street outside appear as a single, continuous space. ■







TYPICAL FLOOR

0 10 FT.
3 M.





Ace Hotel
Seattle

3 **ERIC HENTZ MIXES ORGANIC FORMS AND TOUCHES OF STREET CULTURE WITH A MINIMALIST AESTHETIC TO TURN A FLOPHOUSE INTO A HIP HOTEL.**

By Sheri Olson, AIA

Owners: *Doug Herrick, Wade Weigel, Alex Calderwood*
Designer: *Mallet, Inc.—Eric Hentz*
General contractor: *Ruddesign Concepts*

Construction cost: *$270,000*
Size: *24 guest rooms; 6,500 square feet*
Date opened: *April 1999*

Sources
Wood windows: *Weathervane*
Aluminum windows: *Windorco*
Storefront doors: *Contract Hardware*
Custom cabinets and wenge counters: *Gabe Stern, Issue Design/Build*
Eggshell and high-gloss paint: *Benjamin Moore*
Walnut paneling: *Ruddesign and Larsen Woodworks*
Plastic laminate: *Pionite*
Mosaic tiles: *Huntington Pacific, Daltile*
Coir carpet: *Associated*
Downlights: *Lithonia*

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Program

Cash-conscious urban nomads flock to Seattle's Ace Hotel for a fusion of European pension and minimalist luxury. "We didn't set out to be hip—if you do that you're already out of it—we just wanted an alternative to the standard hotel experience," says part-owner/operator Doug Herrick. The white-on-white interior, stainless-steel fittings, and picture-postcard photomurals provide a low-key backdrop for visiting DJs, filmmakers, and lifestyle journalists.

The hotel is on the second floor of a former early-20th-century maritime flophouse in Belltown, now a stylish neighborhood on the fringe of downtown. To keep rates affordable (rooms start at $65 a night), the existing hotel layout was left in place with minor alterations to accommodate 15 standard rooms and 9 suites. Guests mingle in bathrobes on the way down the hall to six toilet/shower facilities shared youth-hostel style by the standard rooms. Each suite has a private white-tiled bath concealed behind an oversized pivoting door.

Solution/Intention

A steep flight of crisply detailed walnut stairs leads to a reception desk on the second floor. "WELCOME" is formidably engraved on the limestone face of the reception desk but

Sheri Olson, AIA, is RECORD's Seattle-based contributing editor.



the cheekiness of a 10-foot-square technicolor photomural of Mt. Shuksan takes the edge off any self-consciousness.

The lobby, a dazzling white volume carved out of an old light well, lies directly to the left of the reception desk. The simplicity of the tall narrow space encapsulated by glossy white fiberboard panels provides an otherworldly transition from the street. "It opens your mind to the whole experience," says designer Eric Hentz. A strip of skylight, the only outside opening, suffuses the space with glowing light under even the most limpid gray sky.

All interior surfaces, including the worn plank floors, wood molding, and rough brick walls, are painted stark white. Phones, clock-radios, and remote controls are also



Carved out of an old light well, the lobby makes the most of inexpensive materials like fiberboard coated with high-gloss enamel paint. The Ace occupies the second floor of an old maritime building (opposite).

The reception desk stands in front of a campy photo-mural at the top of a flight of stairs (right), with the lobby to the left. Guest rooms (opposite) are spartan but have 14-foot ceilings and witty touches, such as old French military blankets.





white to reduce visual clutter. Low platform beds, 14-foot ceilings, and large double-hung windows create an illusion of spaciousness in the spartan rooms. Other furnishings—mostly stainless steel and bolted to the wall—are kept to a minimum: a sink, a desk-height shelf, and tiny open-ended cubes for bedside tables and storage. "You are beautiful," stenciled on the bottom of each mirror, diffuses the institutional look.

To stretch a tight budget, the design relies on common materials used in innovative ways. High-gloss enamel paint on medium-density fiberboard mimics expensive porcelain panels on the stair and lobby walls. The chocolate brown carpet running down the hallways is coir—a coconut husk material usually used for brush-off mats.

Natural materials effectively play against high-tech materials throughout the interior. The dense grain of the black walnut floor adds another layer of detail and interest to an otherwise monotone lobby. In the large interconnected suites at the back of the hotel, walnut paneling inset with a long horizontal mirror covers an entire wall.

For economy, as well as local flavor, many of the furnishings are salvaged from unlikely sources. The vintage modern Thonet bench in the lobby is from Boeing surplus and once graced an old airport lounge. The stainless-steel vanities mounted in the suites are from a demolished nursing home. Replacing the ubiqui-

1. *Lobby*
2. *Reception*
3. *Guest*



tous floral bedspreads found in most hotels are circa 1950 French military blankets with "Service Sante De L'Armee" marching along the bottom edge.

Commentary

Austere modernism, organic forms, and a dab of street culture come together in an ordered yet fresh mix. "The trick is in the proportions of rough and smooth, sweet and sour," says Hentz. The hotel's design embraces both the natural and the machined, the high and the low. For example, Hentz places rough coir next to stainless-steel furnishings in the guest rooms and juxtaposes tongue-in-cheek photomurals with original oil paintings.

What could have been too cool, even cold, is inviting instead, thanks to the sense of comfort, and fun, running throughout the project. "We want people to look good in the rooms," says Herrick. Soft light from frosted-white Plexiglas cubes and a few strategically placed mirrors flatter everyone's image. Works by emerging artists such as graffitist Kaws and pop-culture satirists Ken Sakurai and Dave O'Regan enliven the guestrooms.

With glass transoms over every door and the predominance of hard surfaces, the Ace may not be the quietest place to sleep at night. Perhaps in this hotel—where a copy of the Kama Sutra replaces the standard issue Bible—that might just be part of the ambiance. ■



Hotel Le Germain
Montreal

4 **LEMAY MICHAUD ARCHITECTURE CREATES A MIDTOWN HOTEL WHERE THE 9-TO-5 WORLD DOESN'T INTRUDE BUT IS PART OF THE HISTORY.**

By Susan Doubilet

Owner: *Développement Germain-des-Prés*
Architect: *Lemay Michaud Architecture Design—Viateur Michaud, partner-in-charge; Marielle Landry, project architect*
Engineers: *Expert-Conseil Genecor (mechanical and electrical); BPR Ingénieurs-Conseils (structural)*
General contractor: *Les Constructions Pierre Blouin*

Construction costs (including furnishings): *$4 million*
Size: *101 guest rooms, 16 stories, 71,000 square feet*
Date opened: *May 1999*

Sources
Curtain wall: *Les Industries Cantex*
Acoustica ceiling: *Armstrong*
Cabinet work: *Designed by Lemay Michaud Architecture, built by Renova*
Wooden venetian blinds: *Stores de Bois Montréal*
Wood flooring: *Lefebvre McCaffrey*
Ambient lighting in rooms: *Lampada*

WWW *For more information on the people and products involved in this project, go to* **Projects** *at:* **www.architecturalrecord.com**

Program

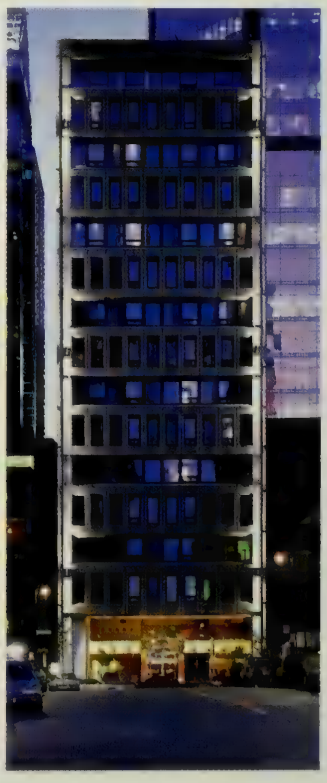
Is it hip or corporate, loftlike or traditional, raw or refined? The new 101-room Hotel Le Germain tries to be all of the above. Housed in a former office building in midtown Montreal, this urban inn targets business travelers yet features arty elements such as exposed concrete and seductive views of glazed showers from guest-room beds. Not unlike Montreal itself—which is at once French, North American, and worldly—Hotel Le Germain offers a series of contradictions.

Muscular building meets mahogany and white linen is one way to describe the hotel. Designed by Montreal architect Viateur Michaud of Lemay Michaud Architecture, the project offers a unique perspective on 20th-century commercial design, working with the bones of a 34-year-old office building and providing excellent views of a neighborhood filled with mirrored-glass, granite-faced, and precast-concrete-clad office towers.

When erected in 1966, the 16-story building now occupied by the hotel was one of the most thoughtfully conceived of these modern towers. Designed by Andre Vescei as the headquarters of the Order of Engineers of Quebec, the building shows off the art of engineering—

Susan Doubilet is author of American House Now *(Universe/Rizzoli) and grew up in Montreal.*





expressing its concrete Vierendeel trusses on its front and rear facades and exposing interior poured-concrete ceilings.

Solution

Architect Michaud took advantage of some of the original features and softened others in deference to the more conservative members of the hotel's clientele. Most foreign to the aesthetic of the original building are the attempts to make the entrance and lobby more inviting.

The new entrance is a glitzy polished-steel assembly inserted into a new, two-story curved wall of mullionless glass, while the lobby is divided into several cozy but fussy seating areas. Mahogany-stained pressed-wood paneling in the lobby adds warmth to the atmosphere, says Michaud. Even the original concrete coffers above the elevator lobby are wrapped in wood, a case of gilding the cabbage rose.

Before its $4 million makeover, the 101-room hotel (opposite right), was a 1966 office tower (opposite left). Like much of the hotel, the reception area (below) blends the corporate with the hip.

1. *Entry*
2. *Reception*
3. *Office*
4. *Concierge*







5. *Guest*
6. *Utility*

Glass walls allow bathrooms (below) to act as extensions of guest rooms (bottom) and afford views out to office buildings that are mostly empty at night. Each floor has only eight guest rooms.

A wall of exposed concrete, whose silver tints seem to glow in a sea of wood surfaces, makes a more successful contribution to the reception area. Up one level, the mezzanine bar with its spare, custom-designed furniture allows a panoramic view of the urban canyon to inspire awe.

Earthy refuges, guest rooms juxtapose rough and soft materials, rawness and hedonism. Dubbed "lofts" by the architect because of their openness and simple finishes, the rooms are 14 feet wide and 9 feet high, with poured concrete ceilings covered only by a coat of gray paint.

Beds and cabinets, custom-designed by the architect, are made of silky, walnut-stained wood. Luxuriant white-linen duvets and pillow cases also make welcome touches. Also contributing to the upscale setting are CD players in every room, 27-inch TVs with VCRs, good lighting, and black-and-white prints by Quebec photographer Louis Ducharme. "Hotel design is detail design," Michaud points out.

Bathrooms are unexpectedly open features in the guest rooms. Because nearby office buildings are rarely occupied at night, the architect separated the showers from the sleeping areas with only glass walls, giving the bathrooms great city views. For the faint-hearted, however, [illegible] between [illegible] can modulate the view, and vinyl shower-curtain liners can exclude it altogether.

Bedroom windows are framed by concrete on the floors occurring within the Vierendeel trusses, or they run as ribbons of glass on the alternate stories. The former window type is furnished with venetian blinds, while the latter is veiled by sheer crinkled polyester curtains, providing subtly muted, ethereal views of the city by day and an undulant silken scrim when the black-out drapes behind them are drawn.

There are only eight guest rooms per floor in the 16-story tower, whose 4,000-square-foot floor plate is more appropriate, as it happens, for a hotel than an office building. Two two-story suites occupy the top of the building. The hotel also has a small conference facility and a fitness room.

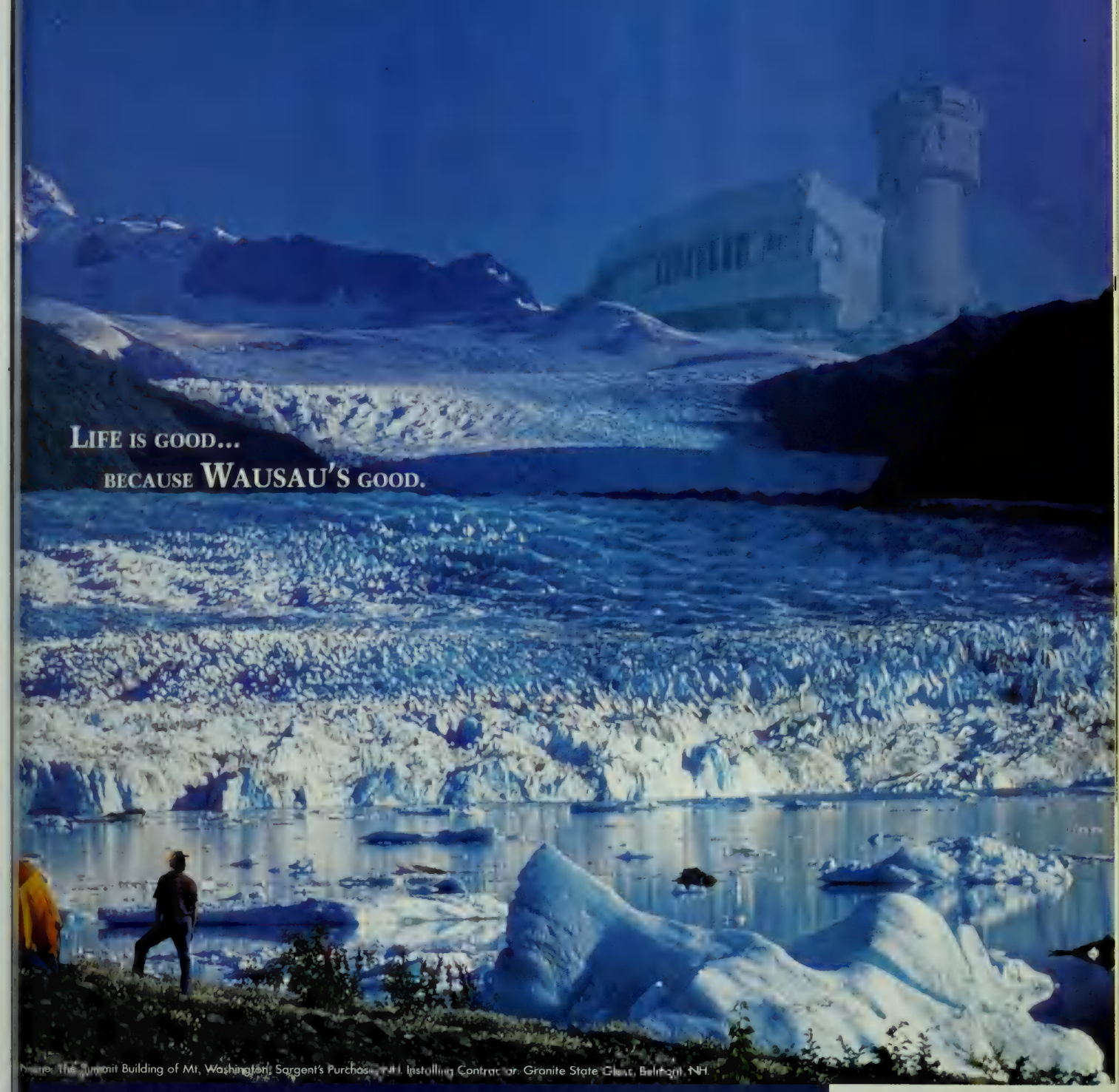
Commentary

Spare, finely detailed guest rooms give Hotel Le Germain much of its appeal. And, perversely, its location contributes as well, offering a special haven for those cool enough to relish the relative remoteness from both the city's lively night scene and the enchanting but tourist-clogged Old Montreal area.

The hotel's developers are gambling that there are enough corporate souls hip enough to appreciate not only the convenience but also the architectural charms of a modern-day business district. ■



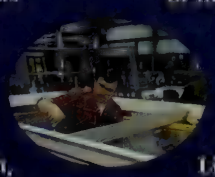




Project: The Summit Building of Mt. Washington, Sargent's Purchase, NH. Installing Contractor: Granite State Glass, Belmont, NH.

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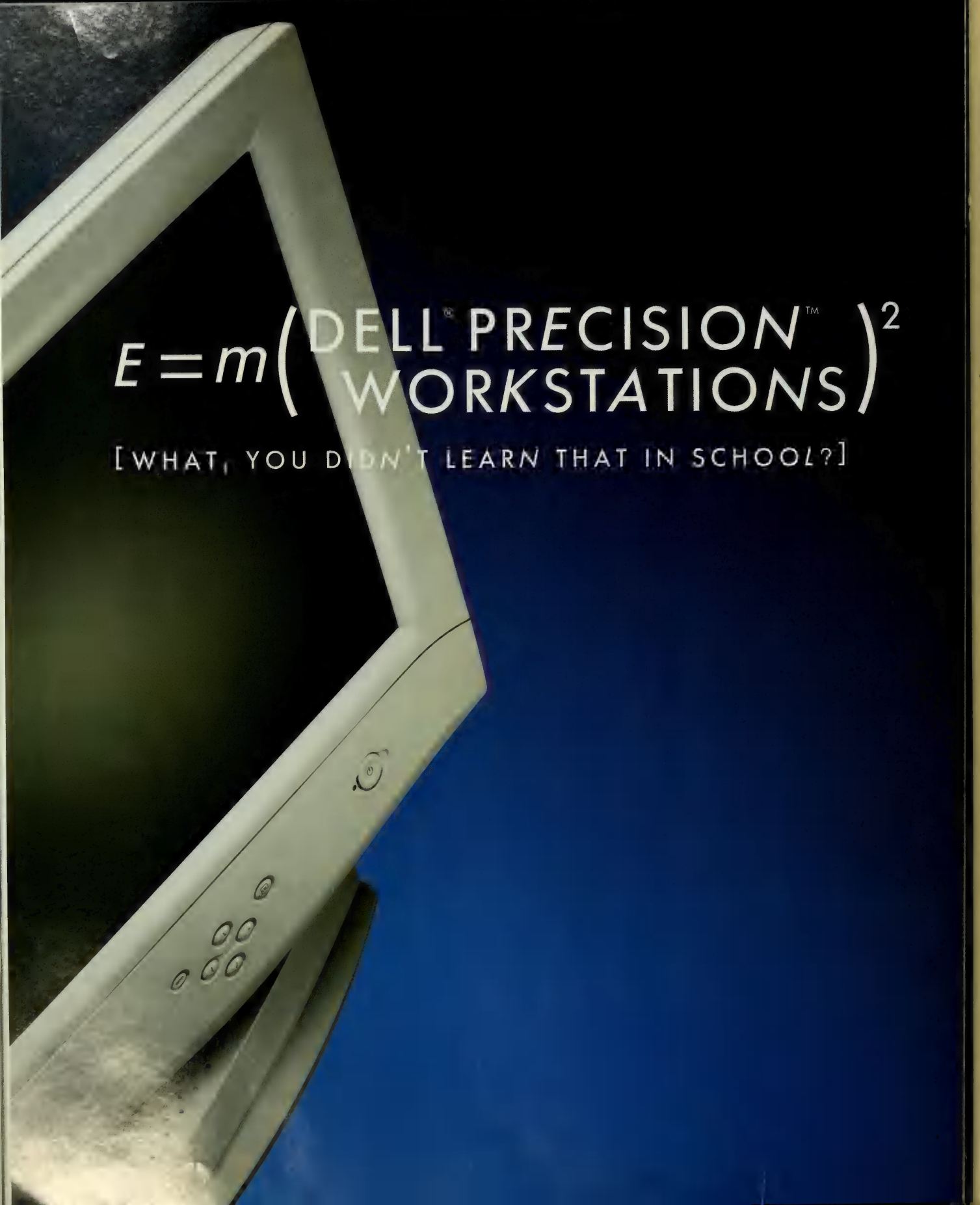
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Seismic Systems that Stand Up to Nature

THREE INNOVATIVE PROJECTS IN THE BOOMING BAY AREA DEMONSTRATE THE LATEST THINKING ABOUT STRUCTURAL SEISMIC SYSTEMS IN BUILDING PERFORMANCE.

By Wendy Talarico

In San Francisco, architects, engineers, and builders don't say the word "earthquake." They refer to those sudden and violent vibrations of the earth's crust as "events." The one that's discussed most in the Bay Area is the 1,000-year event—an earthquake the equivalent of the famous 1906 quake, with a magnitude of 7.8. According to the U.S. Geological Survey (USGS), another 1,000-year quake, would kill "thousands of people…and economic losses might be in the hundreds of billions of dollars." The USGS also predicts there's a 67 percent chance of a quake with a magnitude of 7 or larger before 2020.

No wonder people there and in other seismic zones, such as Seattle, Mexico City, and even St. Louis, are becoming increasingly savvy about the seismic components of the structures in which they live and work. "We're not designing to meet code anymore, we're paying attention to what the tenants want based on their own risk assessments," says Mark Miller of Kaplan McLaughlin Diaz (KMD) in San Francisco. "Office building owners want to limit the threat to their employees and, just as important, to their businesses. Shutting down operations for just one day costs thousands."

For example, in Emeryville, just across the Bay Bridge from San Francisco, Pixar is building an animation studio, designed by Bohlin Cywinski Jackson. The expensive seismic system they're using is perhaps a case of overkill; the base isolators, paired with a concentric-brace frame, far exceed code. For a company that stands to lose money if its sensitive computer equipment fails, however, the expenditure is worth it.

The information and case studies presented here focus on the Bay Area, America's prime earthquake territory. There's a building boom underway there, thanks in part to dot-com companies, but also as a reaction to the lean years of the early 1990s when virtually nothing was built. The boom is an opportunity to advance the seismic design process and even experiment with American and international innovations.



In 1906, a 7.8-magnitude earthquake rattled San Francisco, destroying much of the housing stock. The USGS predicts another strong quake before 2020.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 134 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

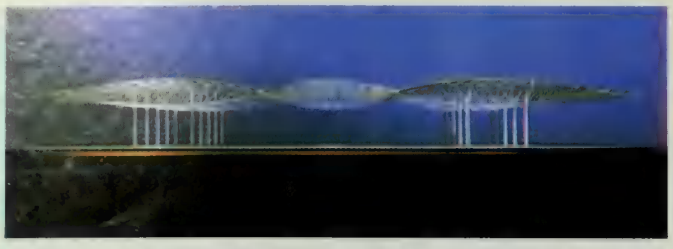
1. *Describe different types of structural seismic systems.*
2. *Explain how seismic systems—including base isolators, dampers, shear walls, and braced framing—function and what types of buildings each serves best.*
3. *Explain seismic terminology.*

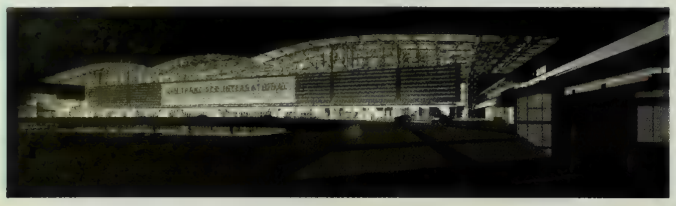
Like many aspects of building science, designing structures to withstand seismic forces is trial and error. "We have a long way to go in terms of understanding how materials and structures behave and react," says David Friedman, president of Forell/Elssesser Structural Engineers. "With every quake we learn a little more about what stands and what falls."

Picking a system

An earthquake is a series of forces, or energy, and the goal of any seismic system is to somehow dissipate or absorb that energy, decreasing the demand on the building structure. There are several ways to design a building to endure an earthquake with minimal structural damage. The seismic system that works best depends on the particular project—its location, the design parameters, the owner's requirements, building codes, and costs.

In California, seismic design is governed by the Uniform Building Code, which sets standards based on the amount of load the building is likely to take and its proximity to fault lines. "Code mandates that the building be stable enough immediately after an event to allow safe egress, but it says nothing about getting back into the building, unless the building is classified as essential—hospitals, airports, and so on,"



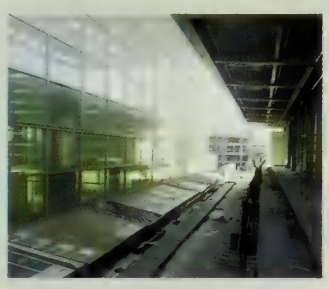




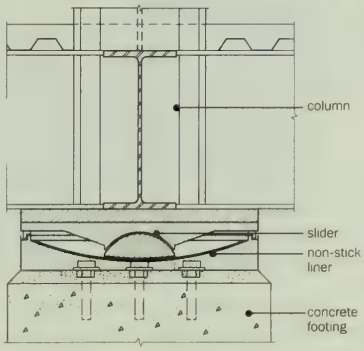
CASE STUDY

New International Terminal at San Francisco International Airport

Completion: *Spring 2000*
Construction cost: *$500 million*
Architects: *Joint Venture Architects (JVA), including Skidmore, Owings & Merrill (SOM), DelCampo & Maru, Michael Willis and Associates*
Engineer: *SOM*







FRICTION PENDULUM

Seismic concerns, while important, weren't top priority when design work began on the New International Terminal in 1993. Then, in 1994, the Northridge quake proved yet again that nature wins out over architecture, despite engineering know-how. "We suddenly realized we had to increase the building's seismic criteria," says Craig W. Hartman, FAIA, an SOM partner at the firm's San Francisco office.

In California, building codes rate structures such as airports and hospitals as essential: they may sustain minimal damage but must continue to operate after a severe quake. In addition, because the terminal spans the entrance road to the domestic terminals, its ability to withstand seismic vibration was even more important. "Nobody wanted anything to come down and block that road," says Peter L. Lee, one of the project engineers.

The terminal's cantilevered roof rests on 2 sets of 10 columns. The innovative, winglike trusses span 860 feet and encompass 1.2 million square feet. To keep the trusses stable and allow the use of delicate steel framing and a window wall at the front facade, SOM's seismic engineers selected friction pendulum base isolators—267 of them tucked beneath the building's columns.

The nonstick, concave surface of the plate and the steel "slider" that moves over it lets the building swing around during seismic vibrations, while the weight of the structure evens the terminal once the earth's crust calms down. The isolators allow 20 inches of movement around the perimenter. "It's a system that works best for a low building, one that lacks strong overturn forces [a building's propensity to flip over when it is rocked]," Lee says. "It's essentially a squat, stiff building, despite the trusses."

Eccentric and concentric braces reinforce the building's frame so that it moves as a unit. The structure is also tightly knit at roof and floor junctions.

While the base-isolation system is unique, it is only part of the story. The real engineering came in creating a seismic moat—the 20-inch-plus seam around the building that allows it to sway without crashing into the adjacent structures or pulling the surrounding roadways along with it. "All kinds of systems come through that seam," Hartman says. "It required connections that could flex and stretch—not exactly off-the-shelf items."

The buildings that lead from the terminal to the boarding gates and connect to incoming mass transit are fixed and will not move in a quake. To keep these wings connected, the floor plates, walls, and ceilings telescope. Metal plates that slide over each other prevent the road in front of the terminal, where passengers are loaded and unloaded, from tearing away when the building moves.

Friedman says. How a building actually fares is determined, in part, by the level of structural engineering that the building owners, working with the architect and engineers, decide to achieve. Factors that determine this level include permissible outage time, extent and cost of repairs, and how electrical, plumbing, and other systems must hold up. It's likely that the International Code will integrate some of these performance-based standards when it is next updated in 2003, he adds.

The [illegible] also determines what type of seismic system is employed. "[illegible] architect says, 'The building must look like [illegible] and.' But the best results come when we work [illegible] solution for the right problem," says Eric Ko, a structural engineer with Ove Arup & Partners in San Francisco.

Seismic devices

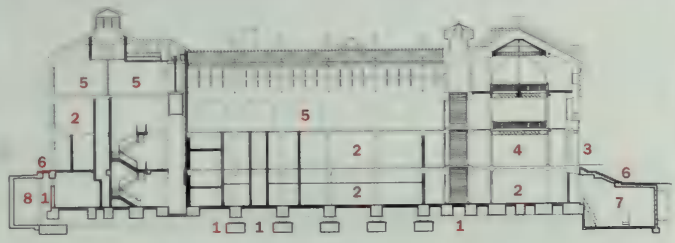
The case studies presented here rely on four types of systems: shear walls, braced framing, shock-absorbing devices or dampers, and base isolation. These may be used alone or, for tall buildings, in combination. Each additional system increases construction costs, though the amount of increase varies. Shear walls and braced framing are least expensive, dampers are higher in cost, but base isolation is most expensive, depending on the number of isolators required and type. "They also perform best," Friedman says.

CASE STUDY

Hearst Memorial Mining Center

Completion: *Fall 2001*
Construction cost: *$49 million*
Architect: *NBBJ San Francisco*
Engineer: *Rutherford & Chekene*





1. *High-damping rubber isolator space*
2. *Laboratories*
3. *Entrance*
4. *Memorial hall*
5. *Graduate student research*
6. *Moat cover*
7. *Mechanical room*
8. *Utility tunnel*

Designed by architect John Galen Howard for Phoebe Apperson Hearst in memorial to her husband, George Hearst, one of the great 49ers (and father of William Randolph Hearst), some aspects of this 1907 Beaux Arts building's interior are intended to recall a mine shaft. But pace 800 feet to the east, and you're standing on the Hayward Fault, determined by the USGS to be the likely source of a major quake in the next 30 years.

"This is the most historically significant building in a near-fault environment," says Brendan Kelly of NBBJ. "It's worth preserving."

The four-story laboratory and classroom building houses the University of California at Berkeley's department of materials science and mineral engineering. Due for renovation 20 years ago, the building had become a warren of offices and labs. "You could barely see the original features, like the two light courts and central atrium," Kelly says.

While sections of the building were closed after a structural analysis in the 1970s, it wasn't until after the Loma Prieta quake in 1989 that school officials took action. "The building survived, but everyone realized its precariousness," he adds.

The university decided not only to preserve the structure, but to update the labs and return the building to its original state. They're also adding two 4,800-square-foot towers. Construction began last summer.

The new seismic system combines 24 fluid dampers and 134 high-damping rubber base isolators, which allow 28 inches of displacement around the building. New concrete beams and existing 2 ½-foot-thick masonry walls add rigidity and tie the structure together.

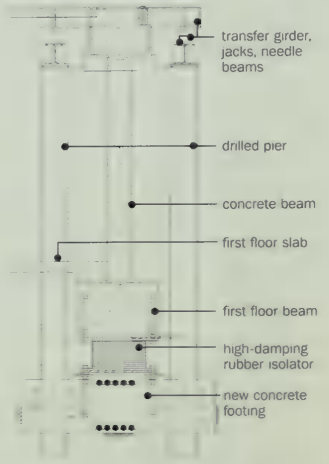
The dampers and isolators work in concert; in a large event, the isolators let the building sway, but the dampers prevent it from swaying too actively. The 16-foot-long, 10-inch-diameter dampers connect to the footings and the first-floor beams.

To maintain the first-floor height, the contractors must remove the existing footings and install new ones 11 to 27 feet below, depending on the location. "This added a tremendous amount of labor," says Douglas Robertson, a structural engineer with Rutherford & Chekene. The isolators are placed atop the new footings, while a grid of concrete beams rests on the isolators. The building columns bear on these beams. The tower additions are tied to the existing building at the first and second floors with concrete beams.

Other seismic precautions include strengthening the 7-foot-tall parapets that ring the building by inserting rebar into 3-inch-diameter vertical cores drilled into the parapet walls (called center-core reinforcing). The 20 chimneys towering above the roofline, will be secured by prestressing high-tension steel strands dropped from the concrete chimney caps to anchor plates at the bottom. The historic Guastavino tiles in the great hall will be painstakingly secured by attaching them to fiberglass-composite stiffening ribs added above the vaulted ceiling. Between the ribs, steel mesh embedded in urethane foam will "grab" the tile.

It seems the expense of the restoration is worthwhile. "I understand the university president is getting phone calls from the other campus departments," Kelly says. "Everyone wants to move into Hearst when the building is done."





Shear walls: These may be added to an existing building or designed into a new one to add strength and stiffness to the building. In commercial buildings, they are most frequently made of reinforced concrete. Their placement and composition requires careful thought about how seismic activity will affect a particular building. On multistory buildings, for example, shear walls are heaviest at the bottom floors where there is the most shear.

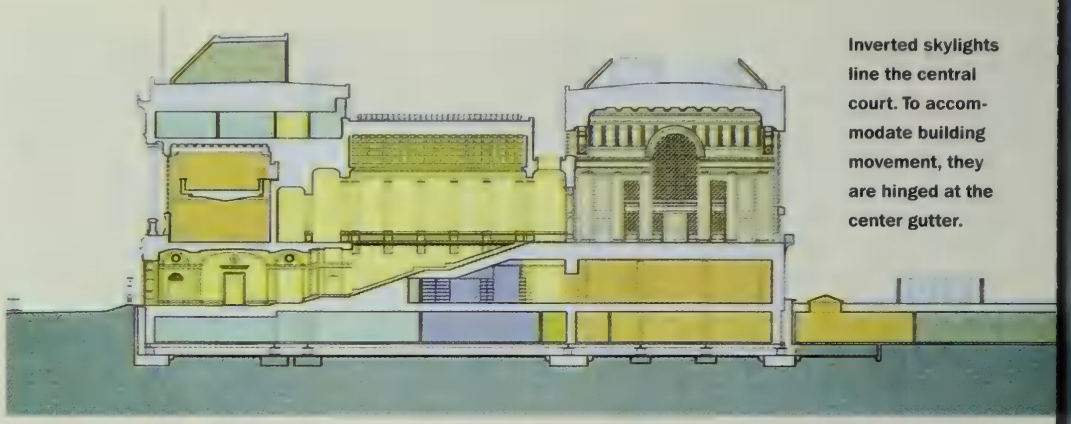
Architecturally, shear walls have a strong impact. They require careful placement of windows, doors, and wall openings. Their thickness, often 12 to 18 inches or more of concrete, eats up square footage and adds weight. Says Navin Amin, with Middlebrook + Louie Structural Engineers, "It's not so easy to have a slender, elegant structure when shear walls are used alone for seismic resistance."

Braced framing: Sometimes referred to as trussed framing, bracing stretches diagonally within a bay to create a triangulated vertical frame. As in roof trusses, the triangles are able to handle stresses better than a conventional rectangular frame. They also add stiffness. Braces are usually welded or bolted in place for a stiff and sturdy joint that will not give in an earthquake. Bracing may be configured as diagonals, chevrons, knees, or in X, V, or K shapes. Concentric braces connect at the intersection of beams and columns. Eccentric braces connect to the beam some distance from the beam-column intersection. This configuration provides

CASE STUDY

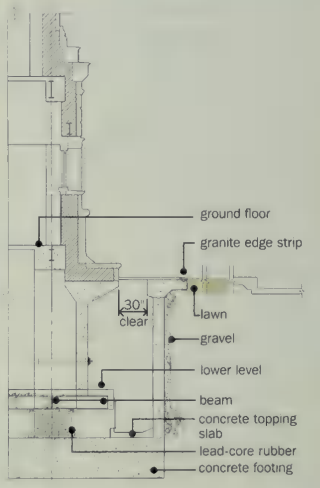
Chong-Moon Lee Center for Art and Culture

Completion: *Fall 2002*
Cost: *$125 million*
Architects: *Hellmuth, Obata + Kassabaum Inc. (HOK), LDA Architects Inc., Robert B. Wong Architects and Planners*
Design architect: *Gae Aulenti*
Engineer: *Forell/Elsesser*



Inverted skylights line the central court. To accommodate building movement, they are hinged at the center gutter.





MOAT SECTION

Built in 1917, this four-story, 163,000-square-foot Beaux Arts building, part of the city's Civic Center complex, was formerly the public library. Now known as the Asian Art Museum, the building will hold the city's collection of antique Asian pieces, now housed at the de Young Museum.

"We're told it is the city's most valuable asset, aside from its real estate," says Mark Piaia, AIA, of HOK. The city mandated that in a 1,000-year quake, only 2 percent of the total collection may be damaged. "The seismic criteria exceeds design for hospitals and other 'essential' structures," he adds.

The seismic structure will consist of 120 lead-core rubber base isolators, working in tandem with shear walls, added strategically throughout the structure. The latter, 36-inches-thick at their base, will be cast in place. "We had to work around the existing openings to find locations for these," Piaia says. "They eat up a lot of square footage." Metal struts that stretch across the wings tie these to the main structure.

The 20-inch-high, 40-inch-diameter isolators allow movement of 30 inches in all directions. "You can specify or 'tune' the isolators to give you whatever displacement factor you want," says Paul Rodler, a structural engineer with with Forell/Elsesser. "Softer isolators are used here for a greater range of motion."

The isolators are now being installed beneath the building one column at a time. To do this, each column is first shored up, the connection between the footing and the column base is cut out, and the isolator is slipped in place. Then the shoring is removed and the column is resettled. "The trick in all this is that the building itself can't move more than ⅒ inch during the process. Greater movement will result in structural damage," Piaia says.

Also, installing the base isolators this way meant sacrificing some of the first-floor height. But digging down deeper to repour the footings (as is being done in the Hearst Memorial Mining Center) would have been prohibitively expensive.

The seismic moat is straightforward—an air space capped by a 5 ½-foot cover that wraps around the base of the granite. There are no structures immediately adjacent to the center and nothing for it to bump into, in case of a quake. The seam is complex only in that it must jog around perimeter details, including stairs, the dining terrace, and other exterior features. It also contains flexible connections for utilities and systems entering the building.

The historical value of the building, combined with the priceless collection it will hold, makes the expense of the seismic system worthwhile. Says Piaia: "Investing in good seismic design is like buying insurance."

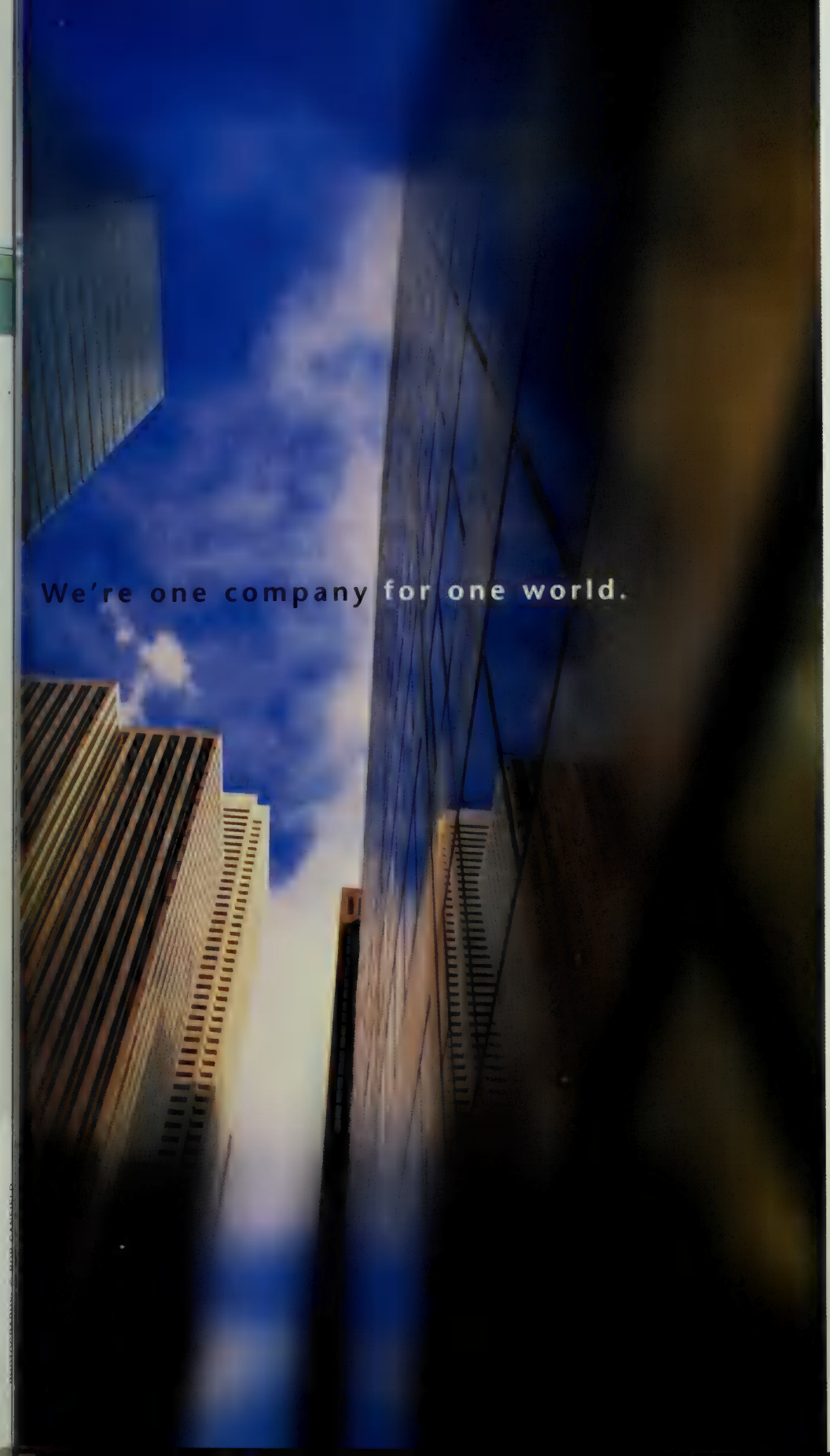
stiffness but prevents a buckled brace from destroying the beam-to-column or brace-to-beam joints.

Bracing limits building design by requiring consistent floor design so that the braces don't interrupt the usage of space. "Positioning the bracing is an architectural challenge if what happens on each floor is different," says Craig Hartman, FAIA, of SOM's San Francisco office.

Dampers: Damping is ordinarily performed by the failure of various building elements. Every shattered window, buckled framing member, and cracked piece of masonry is evidence of dissipated energy. Dampers "typically soak up the energy of earthquake-induced motion," in the words of one manufacturer. Instead of swinging back and forth repeatedly as earthquake vibrations are transmitted, the building is stilled as the motion of the dampers absorbs the energy.

There are four basic types of dampers: visco-elastic, friction, metallic, and viscous. Each employs some type of pumping component or piston that operates against a friction device—pads or fluid-filled chambers—to release energy in the form of friction or heat. Metallic dampers absorb energy via the inelastic deformation of metal. Dampers are normally incorporated into the bracing or paired with base isolators.

Base isolators: First used in the U.S. in the mid 1980s, base isolators come in three varieties: high-damping rubber, lead-core rubber (both elastomeric), and friction pendulum. All three have the same effect: inserted



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The Gap Embarcadero (above), by Robert A. M. Stern Architects and Gensler, includes slotted-web connections and a seismic core (below).

under the building, they allow the structure to move independently of the shifting ground below. Each type of isolator performs differently.

Elastomeric isolators, made of natural and synthetic rubbers, stretch with the building as it responds to seismic forces. The rubber, as it seeks its natural form, pulls the building back into place. The all-rubber version is softer, allowing greater movement, but the lead core absorbs some of the seismic energy and forces the isolator back into place quicker. Friction pendulums offer a lower profile than rubber isolators (8 to 12 inches versus 24 to 36 inches in height) for corresponding load and displacement values—a valuable asset when floor height or excavation depth is limited. They function like a ball on a plate: a curved slider, attached either to the footing or the building above, slips around on a concave steel plate. The weight of the building recenters the slider on the plate after an event, righting the structure.

Among the problems with friction pendulums is what one engineer calls "sticktion," the propensity of the slider to stick at the edges of the plate. Also, in quakes of sufficient magnitude building edges can lift, pulling the slider off the edge of the plate. There are disadvantages to elastomerics, as well. The rubber can harden or stretch, making it unresponsive. For this reason, isolators must be inspected regularly.

Base isolators are not appropriate for all buildings. The structure must be made rigid so that it operates as a unit, involving the addition of bracing, ties, or shear walls. Even so, it is a seismic strategy that offers architects greater design flexibility than brace framing or shear walls. Enough of the seismic force is absorbed by the base isolators that the framing can be lighter, and base isolators are suitable for renovation since most of the work is done at the foundation level.

Improving steel-moment frames

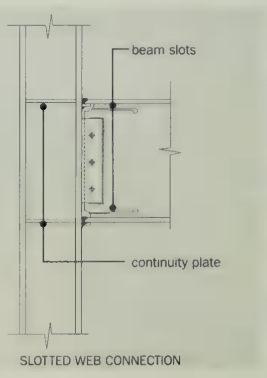
The 1994 Northridge Earthquake, which originated northwest of Los Angeles, proved that steel-moment-resistive frames don't hold up. While the flanges of the beams and columns are fully welded in this framing system, allowing greater continuity and distribution of moment forces, the 1994 event resulted in cracking along the welding of the columns and buckling throughout the assembly.

Since the Northridge quake, these connections have been tested extensively by private research firms and at the four principal federal seismic research centers. On shake tables, which simulate seismic vibrations, and in sophisticated computer-modeling programs, new twists on the moment connections are tested. "There are so many ways of putting a building together, seismically speaking, it seems ridiculous that so much attention is given to steel-moment frames," Eric Ko says. "But architects aren't willing to give up the flexibility that this system allows."

Among the variations are dogbones, in which the flanges of the beam adjacent to the column are shaved, focusing the deformation onto that area of the beam instead of the joint. Damage to joints and columns is more serious and more difficult to fix than isolated beam damage. Another method for improving the performance of steel-moment frames is the slotted-web moment connection in which slots are cut at the top and bottom of the beam webbing. Like the dogbone, this localizes damage to the beams. A circular cut at the end of each slot arrests cracking that might continue through the web.

Slotted-web connections were used by Robert A. M. Stern Architects and Gensler at the 18-story Gap Embarcadero in San Francisco. The specifications for the slots, based on the size and position of the beam, are given to the fabricator, who makes the necessary cuts. A building as tall as this Gap requires a combination of seismic systems to keep it standing after an event. The architects created a four-sided concrete core which acts as a centrally located shear wall. It resists overturning forces and provides stiffness for the rest of the structure.





SLOTTED WEB CONNECTION

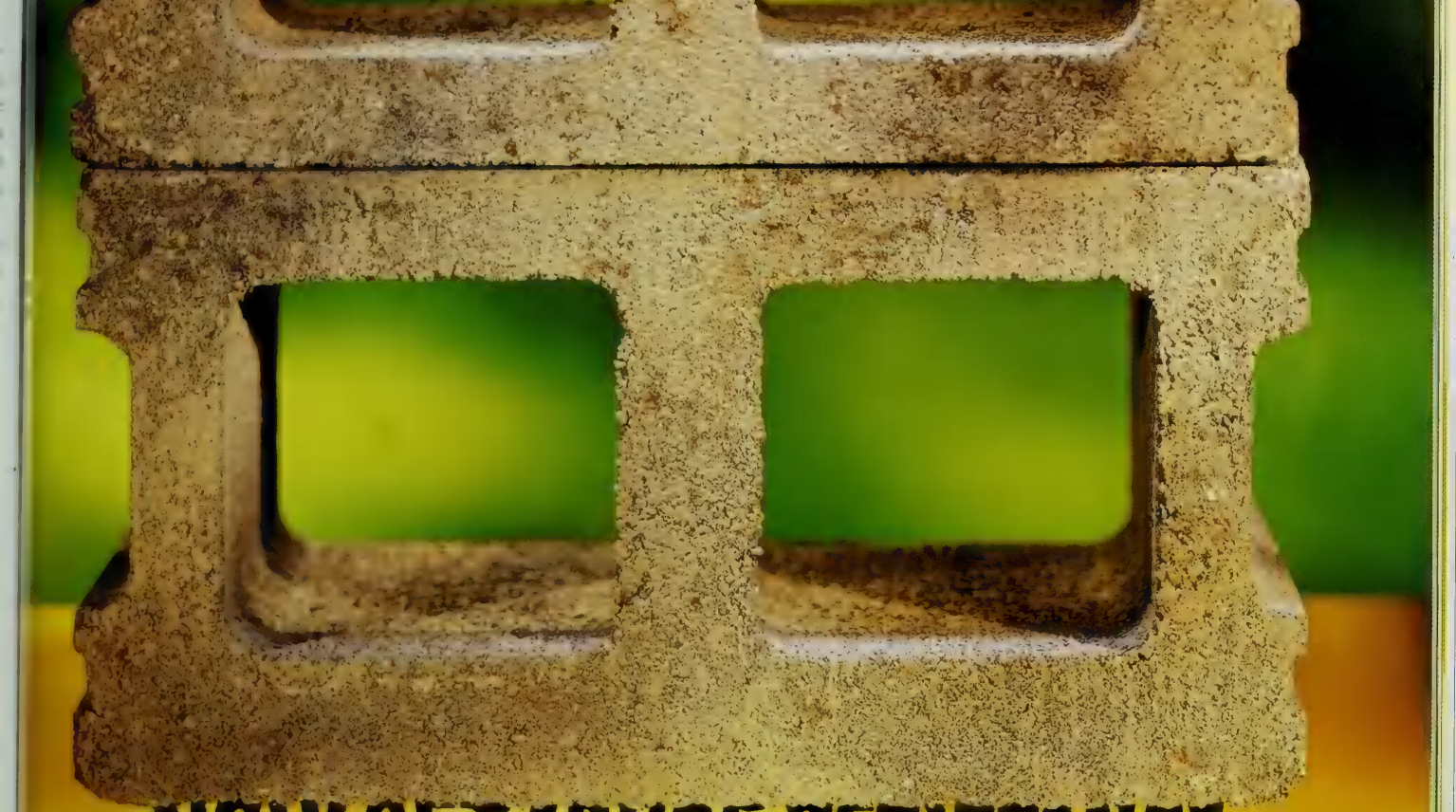
The central spine doesn't interfere with openings—important when the view is as good as it is from this building, located near the waterfront. The core measures 157 by 30 feet at the base, but shrinks to 90 by 30 feet at the top. Its walls taper upward from a thickness of 18 inches to 12 inches on top. The core holds the elevators, restrooms, and storage areas. Steel wraps around the core and is tied to it by collector beams that "gather" seismic forces and direct them into the concrete. In case of a quake, 90 percent of the force will go into the core.

A dance

An architect's job in a quake zone is to make choices that will mitigate the effects of earthquake energy on a building and its contents. "A shear wall cracks, a dogbone buckles, base isolators sway, dampers move in and out, and bracing bends and stretches," Friedman says. "The key is something has got to give somewhere."

As seismic studies progress, however, that something that has to "give" doesn't have to result in a less functional, flexible building. Just as important, it doesn't have to make a building that's clunky and unattractive. "A building should be able to dance with the forces that affect it," KMD's Miller says. "There's no reason why architecture in the Bay Area can't be as graceful as in a place where there is no seismic threat." ■

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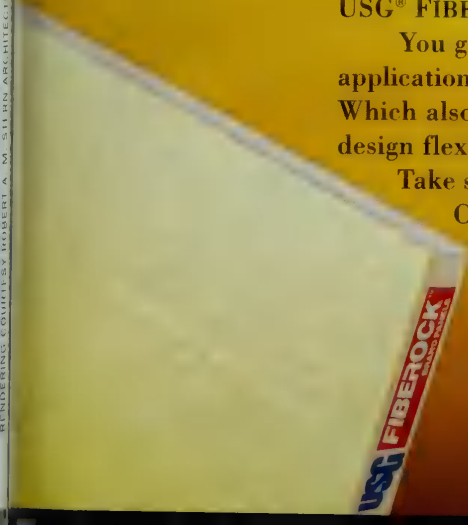
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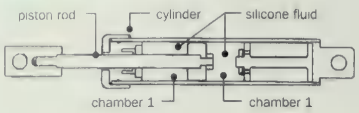
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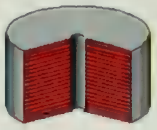
GLOSSARY



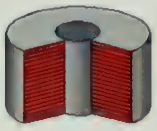
Fluid damper



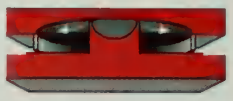
Dampers in chevron bracing



High-damping rubber base isolator



Lead-core rubber base isolator



Friction pendulum

Base isolators: These decouple the building from the ground, allowing each to act independently in case of a seismic event. There are three types: high-damping rubber, lead-core rubber, and friction pendulum.

Base shear: The lateral force that is designed for at the building base.

Braced frame: A frame that uses triangulated elements (trussed) to brace it against lateral forces.

Concentric brace: A brace that stretches vertically from corner to corner within a framing bay.

Dampers: Like automotive shock absorbers, dampers consist of metal tubes filled with silicon fluid and a piston rod that releases energy by forcing the fluid into a series of chambers.

Dogbone: Used on steel-moment frames, dogbones are the flanges of the beam adjacent to the column joint that are weakened by shaving off some of the steel on either side, creating a slender section about two feet long (depending on the depth of the beam). If seismic forces are strong, the beam deforms in this spot, thereby localizing the damage to the frame.

Ductility: Ability of a material to carry load after it is bent.

Eccentric brace: A brace that stretches from some point along the beam or the column, reducing stress on the corner joints.

Moat: The seismic seam or buffer between a base-isolated building and the surrounding structures or land. The moat must be large enough to accommodate building movement in case of seismic activity. Without a moat, the building is anchored to the surrounding structures, limiting its movement and defeating the purpose of the isolators.

Shear wall: A vertical wall that adds stiffness and rigidity to a structure, usually made of concrete in commercial structures.

Steel moment-resistive frame: A frame with joints between beams and columns that are created with welds or, occasionally, high-strength bolts to transfer the load among the members.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Standing Up to Nature" using the learning objectives provided.
- Complete the questions below, then check your answers (page 202).
- Fill out and submit the AIA/CES education reporting form (202) or file the form on ARCHITECTURAL RECORD's Web site at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

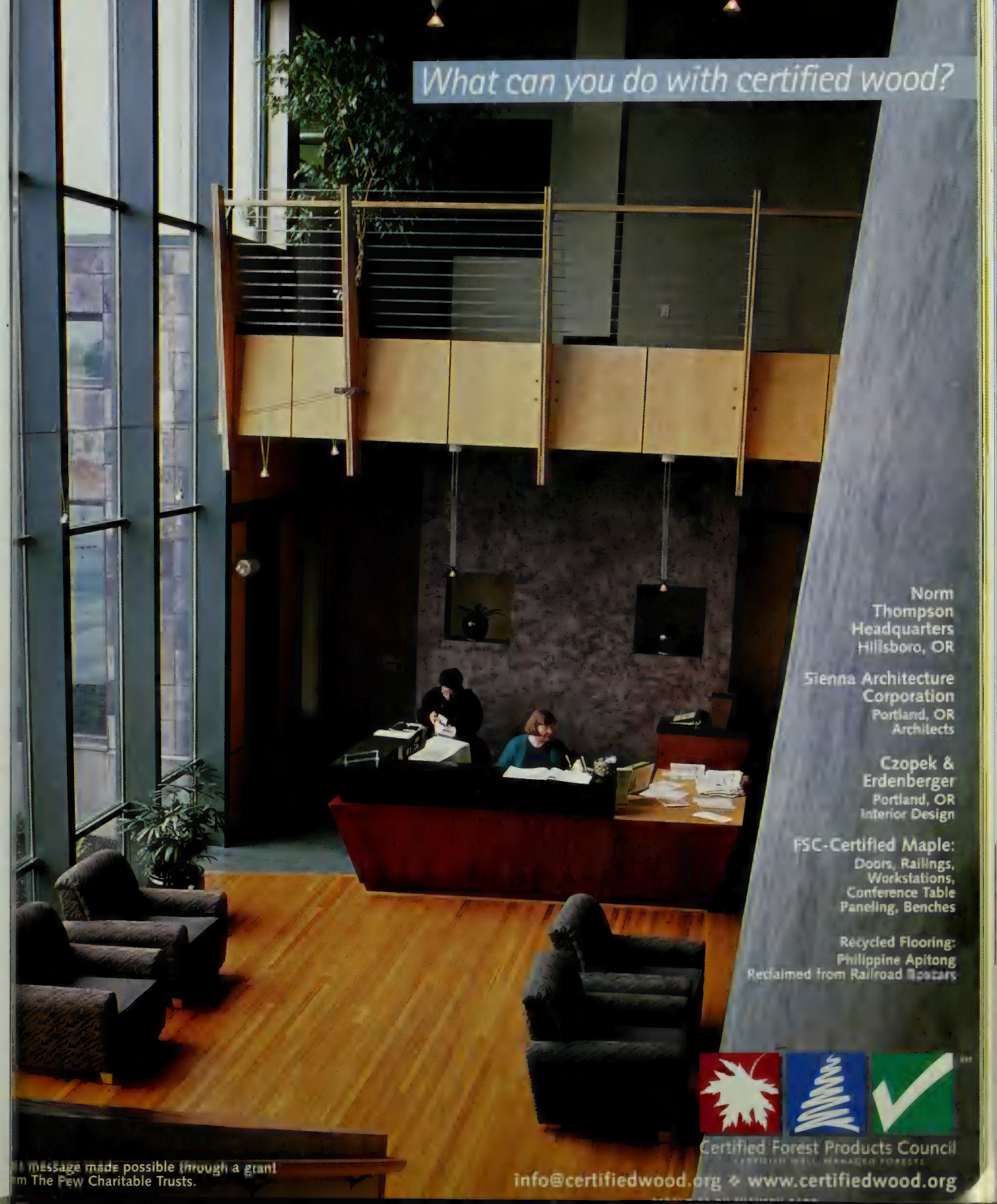
1. What is the goal of seismic devices?

2. What do shear walls add to a building?

3. How does braced framing affect building design?

4. How do dampers work to support a building?

5. How do base isolators work?


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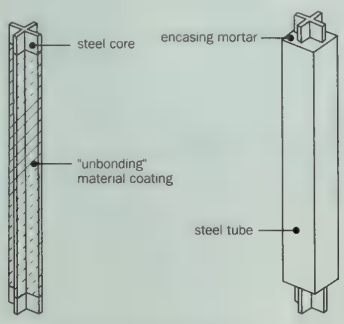
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Tech Briefs





BUCKLE-RESISTANT UNBONDED BRACE

THE UNBONDED BRACE, LONG POPULAR IN JAPAN, MAKES ITS AMERICAN DEBUT

To preserve a building and its contents in the event of an earthquake, American structural engineers specify base isolators with braces—the most expensive system available. But the unbonded brace, according to Eric Ko, a structural engineer with Ove Arup & Partners in San Francisco, is poised to replace base isolators as the Cadillac of seismic systems, and it's reasonably priced.

Developed and manufactured by Nippon Steel Corp., the unbonded brace consists of a concrete-filled steel casing with a steel core shaped as a cruciform or flat bar that's coated with debonding chemicals to let it slip freely inside the casing. The concrete keeps the core from buckling, enabling the braces to perform well in tension and compression.

"Technically, the unbonded brace is a damper," Ko says. "It's the world's largest seismic shock absorber." Like dampers, the unbonded brace absorbs the energy of the seismic forces with a slipping action that protects the main frame. "It's intended to last through multiple quakes. That differentiates it from other bracing systems," he adds, "which, when they deform, drag along the floor plates they're connected to."

Used extensively in Japan during the past 10 years, the unbonded brace is being introduced in the States at the Plant and Environmental Sciences Replacement Facility, now under construction at the University of California at Davis (bottom right), designed by Zimmer Gunsul Frasca. The three-story, 125,000-square-foot building, which contains teaching labs, offices for researchers, and conference rooms, will be completed in late 2001.

"After deciding to make this a steel-frame building, we explored our seismic options," says Doug Reimer, AIA, project architect. "The unbonded brace is well tested. There's no question of how it will function." In fact, the Japanese are using unbonded braces exclusively in structures as tall as 750 feet.

The braces are located throughout the building. "They are really no different from ordinary braces in terms of location and configuration," Reimer adds. Architecturally, any type of bracing is problematic if the programming is not consistent from floor to floor. "We put tremendous effort into putting the braces where they wouldn't hinder the flexibility of the labs," he says.

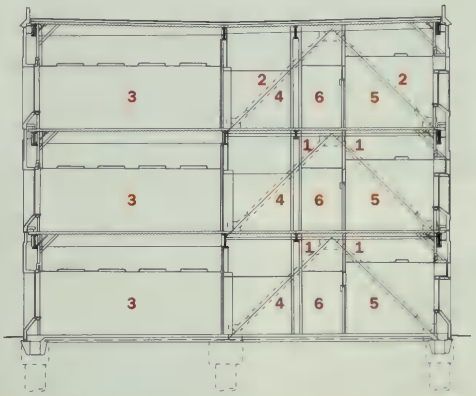
There is, however, another distinct advantage: unbonded braces are so effective at absorbing earthquake energy that they can be very slender. In this case, they are 12 inches square on the first two floors and 10 inches square on the top floor. Standard bracing of a similar performance level would be "enormous," Ko says.

The size and shape of the center core depends on the strength that is required. The stronger cruciform core is used on the two lower floors of the Davis facility, while a flat-bar core is used on the top floor.

Cost may prove the brace's biggest advantage. Reimer's bids put the cost, including construction fees, at about one-half percent of the total construction cost. "This was still competitive, and the cost is likely to come down as the braces are more widely adopted," he says.

Unbonded braces are too new for inclusion in U.S. building codes. The Davis facility is being treated as a "special case," Reimer says. If it meets approval, there is a good chance the bracing system will be adopted into code in 2003.

Wendy Talarico



1. *Cruciform-core unbonded brace*
2. *Flat-bar core unbonded brace*
3. *Laboratory*
4. *Laboratory support*
5. *Office*
6. *Corridor*

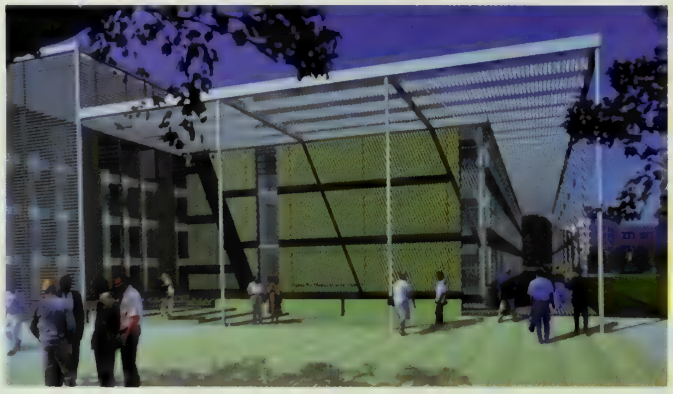


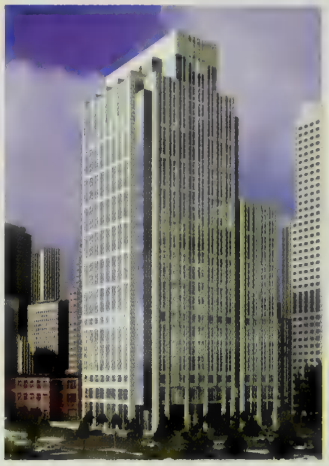
ENGINEERS, ARCHITECTS WORK TOGETHER

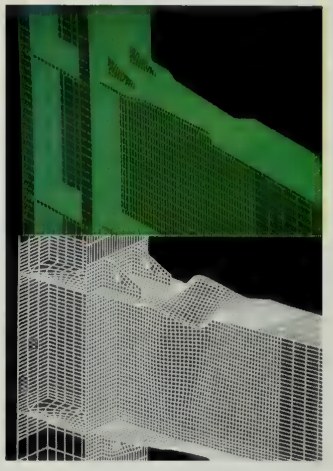
Successful building design in seismic zones relies on a close relationship between structural engineers and architects. "Seismic elements are an integral part of the building palette," says Tom Leslie, AIA, with Foster & Partners who, together with Fong & Chan Architects, worked with structural engineers Ove Arup & Partners to design the Stanford University Center for Clinical Sciences Research in California (below). "The seismic design cannot be separated from the building design. We worked with Arup from day one," he adds.

The center, to be completed this spring, consists of two four-story wings separated by a 55-foot-wide atrium. The concrete-frame wings have conventional reinforced-concrete shear walls but, stretching between them, are six steel-frame bridges and roof-level steel framing with louvers that shade the atrium.

In case of an earthquake, these steel members would shake with the comparatively rigid wings. "It's like holding the candy end of a lollipop and shaking the stick," says Eric Ko, a structural engineer with Arup. The bridges and steel canopy were placed on friction-pendulum base isolators, which allows them to operate independently of the buildings. "It's as if they are floating," Leslie says. Isolating the bridges and framing permitted the use of finer, more elegant members. It was also less costly than putting the entire structure on isolators.







The 24-story 199 Fremont Street (left), uses dogbone connections. Computer tests (right) show the dogbone beams deform where they are shaven.

This approach is significant in that it takes the base isolators out of the basement, Ko says. "It's a trend we'll see more: building elements will be allowed to react to seismic forces independently."

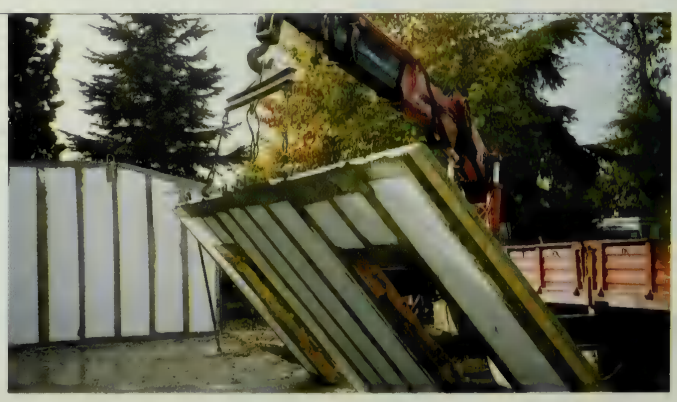
Structural engineers also played a big part in the design of a 24-story office building, by Kaplan McLaughlin Diaz (KMD) and EQE Structural Engineers, at 199 Fremont Street in San Francisco. The steel-moment, core-braced frame, which incorporates the new dogbone connection, is one of the first such systems in the Bay Area. "Extensive testing using computer modeling and scale models proves that dogbones, in essence, tell the beams where to deform," says Mark Miller of KMD. "You know where to go first for repairs. That was important to our clients." The owners wanted a building that could be quickly reoccupied after a quake, adds Stephen Harris, a structural engineer at EQE.

Architecturally, the core and dogbones allowed a delicate exterior with mostly glass corner offices. "It's a system we're using on almost everything we're doing now," Miller says. *W.T.*

CONCRETE BUILDING SYSTEM WITHSTANDS AFTERSHOCKS IN TURKEY

After Turkey's devastating earthquake last August, Tony Ruiz of Simple Building Systems (SBS) in San Diego got a call from Douglas Layton of Servant Group International, a Nashville-based organization that coordinates the construction of buildings for disaster relief. Layton wanted SBS, which manufactures low-cost concrete and steel building systems, to donate materials to help the disaster victims. So last October, Ruiz not only sent an estimated $80,000 of supplies, but assembled a team of American volunteers who worked [illegible] two 2,000-square-foot school buildings in Yalova, Turkey. "Layton asked if it was possible to finish the job in 13 days," explains Ruiz, "I said yes."

Ruiz used his company's ThinCon system of precast or poured-in-place concrete studs and plates. Walls and roof panels were poured face-up (so the top surface faced the outside) over expanded polystyrene molds, resulting in monolithic 9-foot-high walls. Since lumber is expensive in Turkey, the team used the building slabs as casting surfaces for most of the panels, which allowed them to be simply tilted up near their places.



To help the school buildings withstand the next quake, ribbed steel reinforcing bar and high-grade concrete was used—though local builders were skeptical. Ruiz says the poor-quality concrete and smooth rebar normally used are partly to blame for the many structures that tumbled in the August quake. The real test of materials and construction methods came in November: the new schools survived a 5.2-magnitude aftershock without a scratch. *Rita F. Catinella*

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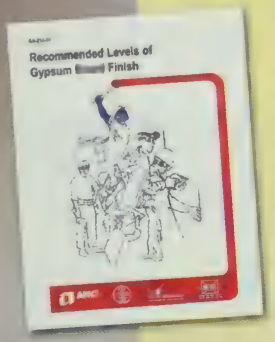
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CIRCLE 53 ON INQUIRY CARD

Digital Architect

Giving small firms the tools to be big

By B.J. Novitski

When John Marx, AIA, was a senior designer at a large architecture firm, he and his coworkers joked that "two guys and a fast computer" could accomplish more work faster than the management-heavy design department. With his well-honed skills in both design and computer modeling, Marx often completed competition entries for large buildings with a team of only two or three.

He is further testing the joke in the new 13-person San Francisco firm, Form4, with partners Robert Giannini, AIA, Gary Adkisson, and Paul Ferro. Scarcely a year old, Form4 enjoys challenging, complex projects often considered beyond the scope of small firms, thanks to the efficiency gained from doing most of their work on computers.

Project diversity is not the only benefit of technology. The firm also uses technology to blend design and business skills to meet a range of client needs. Where other firms use the subtitle, "architecture, engineering, and planning," Form4 business cards list "architecture, management, and collaboration."

This emphasis on nontraditional services reflects the partners' work with clients beyond the construction of a physical facility. It also recognizes that a small firm benefits from partnering with other firms and individuals. Form4's architectural design, business management, and team collaborations are all integrated through computer technology, giving them a competitive advantage. Giannini sums it up: "To make it as a small firm, we must be able to do more, and do it better and faster."

Underlying technology

The architects use Power Macintosh G3 computers with FormZ for their 3-D modeling. The software affords a "comfortable" graphic environment for the architects. They do 2-D design of elevations and building cores with Dell Dimension XPS Windows PCs and AutoCAD R14, which they have in common with their engineering consultants. They believe the advantages of these systems merit the high per-capita investment in hardware and software for a dual-platform office.

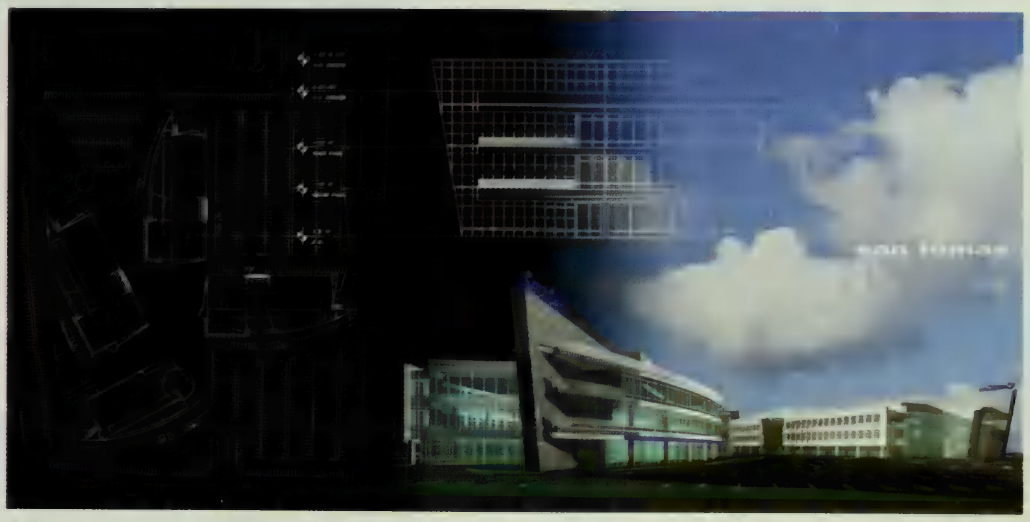
Translating files between platforms with the DXF and DWG file formats keeps all work-in-progress digital, so they never have to redraw what's already designed.

Although few experienced architects today are familiar with both FormZ and AutoCAD, the firm's goal is to make all staff members proficient in both. Form4's wish list for hardware that will further extend the firm's capabilities includes a large-format plotter and a high-speed Internet connection for the principals' home offices. A digital camera will allow them to document problems found in the field and instantly transmit images to team members.

Fast-tracking

From the beginning, Giannini's passion for "giving form to ideas," coupled with the technology focus, has led Form4 to concentrate on relatively large projects. The firm specializes in corporate and hospitality facilities and has entered international competitions for large office buildings. In one recent fast-track project, Ferro, Marx, and two staff members completed design and working drawings for a 500,000-square-foot corporate campus in four months. This was possible, Marx says, because computer technology let the designers make the decisions. Such direct involvement by the principals in the design of every project is a key selling point to potential clients.

Marx has been working with FormZ for so long that he skips the manual drawing stage and goes directly to the computer. The software's ability to display the building-in-progress from any view is essential to his creative process, and its ability to model curvilinear forms gives his designs their drama. FormZ incorporates rendering capabilities, which the firm uses for in-house and informal evaluations as well as for final presentations.



A four-person team completed design and working drawings for a four-building, 500,000-square-foot corporate campus in only four months. The buildings are for a high-tech software company in Santa Clara, Calif.

Keeping everyone up to date

Form4 follows what Marx refers to as the "Silicon Valley model" of office management. "Unlike firms where decision making is top-down," he explains, "we foster an atmosphere of collaboration," achieved, in part, by communicating openly about all projects in the office. Meeting notes and construction administration documents expose the junior staff to a broader spectrum of professional experience than they might see in a more conventional setting. Office

management tasks, such as correspondence, scheduling, and contact management, are integrated through Microsoft Office and FileMaker Pro applications and internally circulated by E-mail. Keeping staff members informed enhances their cohesiveness and makes them more effective and independent decision makers.

This philosophy of openness is reflected in the firm's floor plan. Instead of fixed walls, half-height partitions enable everyone to see, hear, and interact with the rest of the office. (The partners telecommute from home when they need quiet.) The office is scattered with fully wired tables for impromptu conferences. Employee workstations on wheels shift positions frequently to adjust to varying sunlight angles and to make accessing nearby reference drawings convenient.

It's not just in-house that Form4 excels in management innovation. Computer technology is also used to expand client services. Management partner Adkisson recently demonstrated the power of integrating financial planning with architectural planning. He designed and commissioned software that links an architectural program to a system, helping building owners track the financial performance of the various areas.

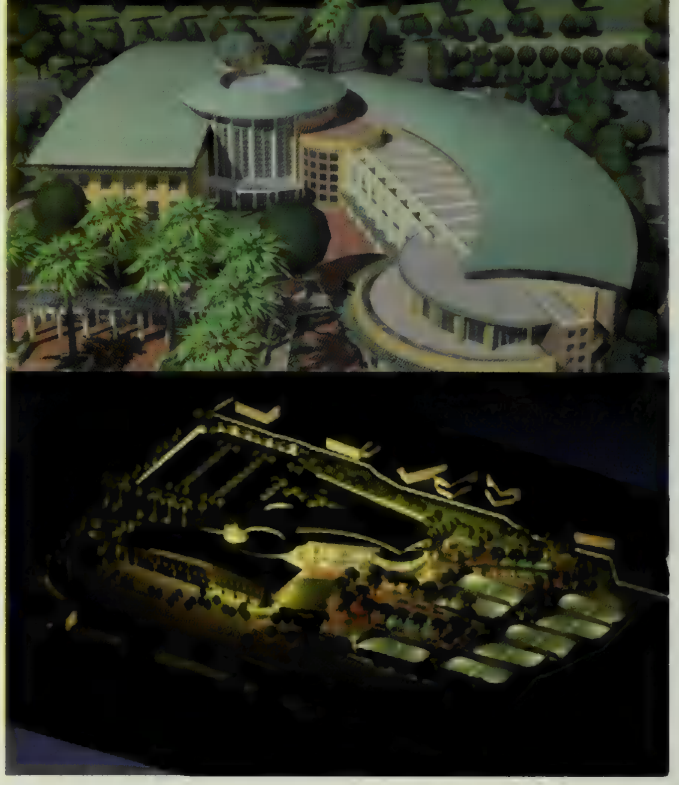
For a 64,000-square-foot wellness center in Livermore, Calif., for example, Form4 worked with the client, owners of an adjacent hospital, to design spaces that carefully balance luxury and privacy to serve two disparate populations: those who come to relax and exercise and those who come for cardiac therapy.

At work at this dual-purpose facility are financial and operational models which Adkisson developed. With the custom software, the owners can evaluate the profitability of particular areas daily and react immediately by renovating space for alternate purposes. Adkisson says the clients' confidence that this unusual experiment would work was bolstered by the fact that the financial management model and the architectural planning originated within the same firm.

Anytime, anywhere

The ability to collaborate with anyone anywhere, supported by digital communications, is key to the success of a small firm with big ideas. It enables Form4 to extend their capabilities without expanding their staff. For example, when a project calls for a highly polished rendering, computer models are E-mailed to a digital renderer. Firm members communicate with him about the renderings by digitally redlining the drafts in Photoshop. If the image files become too large to send easily by E-mail, they are transmitted through the Internet's file transfer protocol (FTP).

Similarly, the Form4 architects send digital files to engineering and landscape consultants and receive digital files in return. They avoid firms using manual methods that disrupt the flow of electronic drawings from team to team. This digital collaboration is particularly useful for geographically remote professionals. Form4 is working on projects with architects in China and Brazil. These collaborations work well because, though the foreign architects may not have easy, affordable access to the most current design software, they know local codes and practices. Form4 also collaborates with other firms on large competitions.



Form4 architects created a simple bird's-eye view rendering of the Carmel Valley Athletic Club in San Diego to help the clients understand the dramatic roof form.

Key to the success of Form4 has been the technical and business abilities of its four partners. They did not have to overcome an established culture or educate managers who predate the computer age. As more young firms emerge fully in control of technology's levers, the profession will see more new business models and new ways to succeed. ■

WWW *For a list of software vendors with digital resources for small firms, go to* ***Digital Architect*** *at:* ***www.architecturalrecord.com***

HOORAY FOR TECHNOLOGY **Many small firms are exploiting technology to expand their capabilities without hiring more staff. Patrick Szustak, AIA, who runs a one-man firm in Chester Springs, Pa., is working on a 50,000-square-foot school using a Web-based project-extranet service to communicate with consultants and contractors. In the bidding phase, he issues addenda to hundreds of subcontractors by posting a note and a drawing to the extranet. During construction administration, he photographs problem areas with a digital camera and posts the photos to the extranet for quick responses from his consultants.**

Architect Robert Benson, of the three-person Chicago firm Von Weise Associates, leverages technology not only to tackle large projects but also to expose the team to an interesting diversity of project sizes. Using Pentium PCs, they create building models in AutoCAD 2000 and 3-D Studio Viz and composite them in Photoshop with a photograph of the existing site. They further develop the images with Illustrator and PageMaker and send them to a color printer to produce polished presentations that compete successfully against very large firms. The company also uses Maya software to place video footage of a client into a proposed building animation. This gives the client a clearer idea of the scale and impact of the design-in-progress.

Don W. Thursby, AIA, principal of a five-person firm in Rolling Hills Estates, Calif., particularly likes the office management systems customized for his firm by Redondo Beach, Calif., consulting firm Architectronica. These productivity tools, such as T&E, for tracking time and expenses, built on the database program FileMaker Pro, let him easily manage invoicing, contacts, and project databases, which in larger firms would typically be handled by a managerial staff. ***B. J. N.***



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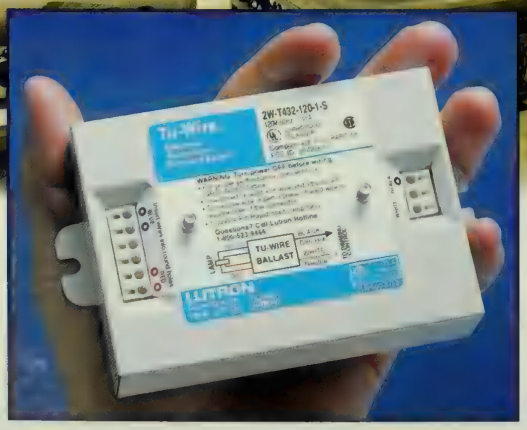
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CIRCLE 56 ON INQUIRY CARD

LIGHTING...

The most delightful part of being the editor of ARCHITECTURAL RECORD's Lighting section is the joy I get seeing the imaginative things that designers do with light. Yes, from time to time, I complain to my colleagues—and anyone else who will listen—that I've seen it all. Then, someone will come along and show me something brand new.

For example, I don't think anyone has ever submitted an elevator cab for publication before. Not until last December, when lighting designer Carlos Inclan E-mailed me photos of the elevator cab that he and architect Susan Matheson did for The Color Wheel in New York City (1). Their solution is not only fun to look at, but very clever, considering the constraints involved in lighting a tiny room that moves up and down the height of a building several hundred times a day.

Of course, some people ask why really dramatic lighting can't be designed on a budget. That must be what Seattle architect Don Carlson, FAIA, was asking himself when he designed lighting for his own residence (2), using little more than porcelain sockets, PAR lampholders, exposed recessed lights, and off-the- shelf wallbox dimmers. I enjoyed this project because the lighting is simple and inexpensive, yet adds so many layers of complexity and richness to the space.

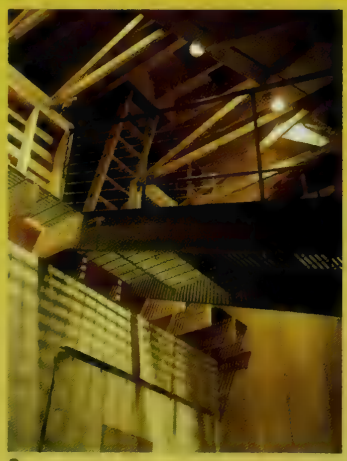
It isn't surprising that the real story of Ingo Maurer's new showroom (4) lies in Maurer's inspiring design work of his own products, not the lighting of the showroom itself. That seems logical, considering that the last thing one wants is for the lighting in a showroom to compete with the products on display, particularly if they are luminaires. Maurer's products on display there are colorful, made of a wide range of media, and thought provoking.

All this is not to say that I'm now jaded to all but novelty in lighting. I equally respect the ingenuity of lighting designer Angela McDonald, of Horton•Lees Lighting Design, who lit San Francisco City Hall (3). The skill here lies not in the provocative nature of what is visible, but rather in what one does not see: the creation of fixture reproductions that are indistinguishable from the originals, concealed modern wiring and fixtures, and her decision to light the building with subtlety. The City Hall is grand—there is nothing to be gained by gilding this lily. *Charles Linn, AIA*

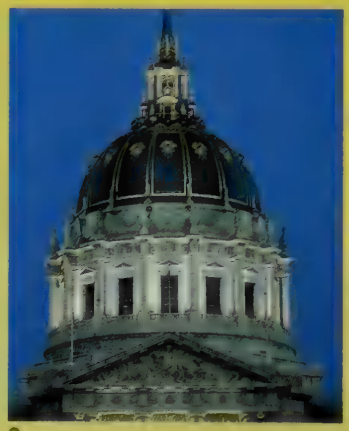
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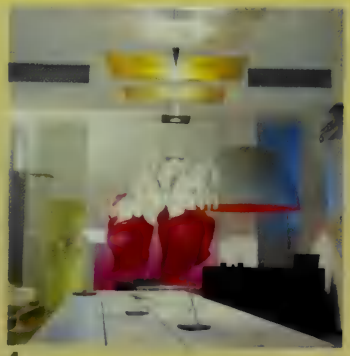
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YARNELL AND ASSOCIATES LAVISH A GLOWING FUTURE ON A CENTURY-OLD MURAL

One of the most impressive of the many original artworks in the two-story lobby of the Marquette Building in Chicago is Tiffany & Co.'s 1895 mosaic mural. It depicts the explorations of the Chicago area by the French missionary Jacques Marquette, from whom the landmark building draws its name. The mosaic is made of colored glass, semiprecious jewels, and mother-of-pearl, installed on the vertical face of a hexagonal rotunda separating the first and second floors.

Originally, the artwork was illuminated by daylight, which filtered through glass elevator shafts and interior rotunda windows. During numerous renovations, however, these openings were blocked, and the mosaic eventually was lit by the harsh, flat glare of fluorescent uplights.

Yarnell Associates of Shawnee, Kans., was commissioned to relight the mosaic. Bruce Yarnell decided to use a proven art gallery technique: to light the 100-foot-long, 4-foot-high installation between 20 to 40 degrees from nadir, and to light it from above. The challenge was to develop a housing for the 60 lamps Yarnell deemed necessary to cover the six-sided mural and, somehow, to integrate a new fixture with a classical column that stands in the center of the rotunda.

The design brief required that the fixture not penetrate the building's floor or walls or invade the space in any way. "Overall, our goal was to develop a fixture that would be compatible with the architecture, be recognized as a new addition, and give the impression that it could easily be taken out if architectural purity was desired in the future," says principal Yarnell.

He decided not to touch the column, but to use it as an inspiration: the design of the fixture evolved into a 14-foot-diameter ring around the column, suspended from the ceiling with cables. The ring's appearance takes its cues from the column's capital, with a cross section that has rounded corners, a recessed bottom, and a slightly curved top—removable so fixtures can be aimed and relamped.

To keep the ring lightweight and inexpensive, Kramer Lighting used fiberglass-and-resin composite and painted it matte white to be compatible with the marble of the rotunda.



A new 14-foot-diameter ring made from fiberglass-and-resin composite houses 60 SOLUX lamps to light the Marquette Building's Tiffany mosaic.



A detail of the mural shows the cool colors brought out by the new lights.

Since the mural is made up of many colors and incorporates glittering gems, the task required a light source with precise optics that simulated daylight. Although MR16 lamps have good optical control, most are rated at 3,000-degrees Kelvin, a warm-colored light that would not enhance the cooler colors found in the mosaic. Yarnell tested the recently developed SOLUX lamps, which are available in cooler color temperatures, including 3,500-, 4,100-, and 4,700-degrees Kelvin, and decided to use them instead of MR16s. The SOLUX lamps are also available in three beam spreads, so that artwork can be precisely lit. Based on mockups, Yarnell decided to use 3,500-degree Kelvin SOLUX lamps with a 17-degree beam spread.

The bright light from the new fixture and lamps articulates all of the colors of the mural, including the blues and lavenders. And people who have worked in the building for many years say they never knew the mural could be made to shine so well. *Nayana Currimbhoy*

DICHROICS FOR AN ELEVATING EXPERIENCE

In Manhattan, even an elevator ride can turn into an adventure of the mind. At the midtown office building of The Color Wheel, a printing and computer-graphics firm, riders are treated to a subtle reminder of the importance of color to the firm's business. Unusual elevators, conceived by architect Susan Matheson of Matheson Architecture and Design and lighting designer Carlos Inclan of Luminotecnia set the tone.

Three elevators in the lobby are fitted with nine 15-inch-diameter steel portholes covered with dichroic filters and backlit with fiber-optic lighting. One cab is fitted with red filters, the second with blue, and the third with green. The filters work by reflecting the unwanted portion of the spectrum, allowing only light of a desired color to pass through, and have another property: when the filters are viewed from different angles, their color appears to change. Each of the "dichroports" can be viewed only from very different angles. Since the color changes with the angle of view, none of the ports ever seems to be the same color at the same time, producing interesting, ever-changing color shifts. The brushed, stainless-steel walls that compose the rest of the cab, reflect different hues of light, heightening the experience.



Dichroic filters backlit by fiber optics decorate the elevators in Color Wheel's office building in midtown Manhattan. The colors represent the basic red, green, and blue used in the firm's printing and computer-graphics work.



The 15-inch-diameter filters are mounted in sturdy stainless-steel rims and protected by a layer of clear glass.

Matheson had an easy time convincing her client to approve the use of the concept; however, the logistics of the actual installation took some creativity. One challenge for the designers was to find a light source that would be compact enough to evenly backlight the filters, since the depth of the dichroports was limited to one and a half inches. Ease of maintenance and resistance to vandalism were also concerns.

Matheson and Inclan elected to use fiber-optic cables, custom-made by the Legacy Lighting Group, run in narrow tracks on the inside perimeter of each porthole. An illuminator mounted atop each elevator cab channels light to the nine dichroports for that cab. This allows the illuminator lamps to be easily accessed and changed.

To make the Abrisa Industrial Glass filters resistant to breakage, they are laminated between a clear layer of glass, which faces the inside of the elevator cabs, and a layer of frosted glass, which also helps diffuse the light from the fiber optic cables. The glass sandwiches are mounted in sturdy stainless-steel rims. The installation was completed by CEC Elevator Cab.

Finally, to ensure that the brightness of the overhead fluorescent lights in the elevators did not overwhelm the light emitted by the dichroports—while keeping light levels in the elevator high enough to make them safe—the fluorescent tubes were dimmed by simply being wrapped with layers of neutral-density gray theatrical gel material.

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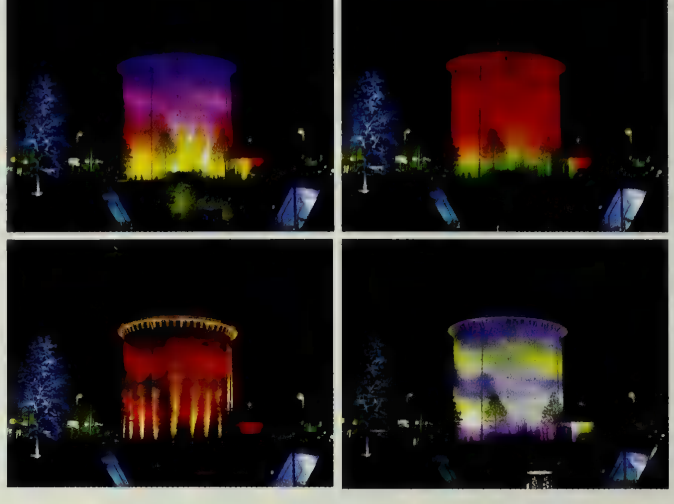


CONCRETE BUNKER IS STAR OF WORKSHOP

An abandoned bunker in Bochum, Germany, became a canvas for a flamboyant display of lights during an exterior lighting design workshop last summer. The five-day workshop, part of a 12-week theater lighting seminar sponsored by the International Theater Academy Ruhr, was conducted by two leading architectural lighting designers, Paul Gregory of Focus Lighting, New York, and Jonathan Spiers of Jonathan Spiers Associates, Edinburgh, and attracted an international contingent of theatrical lighting students.

The workshop culminated in the lighting of a 100-foot-tall, 60-foot-diameter bunker. Theatrical light fixtures, PAR64s, and gel-wrapped fluorescent lamps were used to bring vibrant colors, interesting patterns, and streaks of light to the textured, neutral surface of the bunker.

"Thanks to the diligence of the organizers, we had an extremely large package of equipment available from multiple companies," says Gregory. "The students had more than 200 fixtures at their disposal. The many different types of luminaires gave the students the freedom to experiment with almost any idea they could imagine." *N.C.*

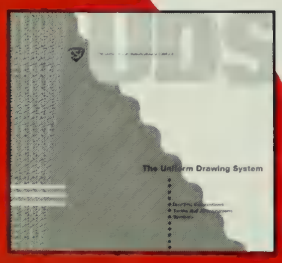




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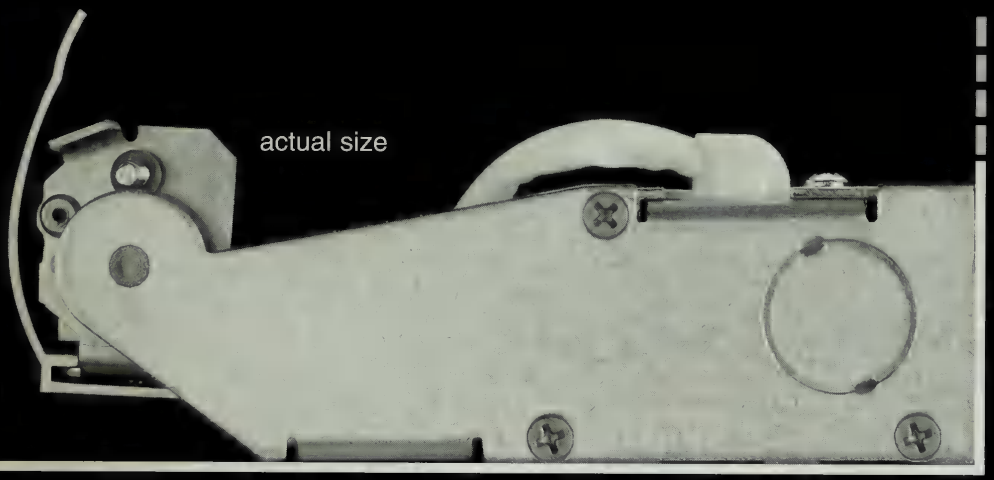
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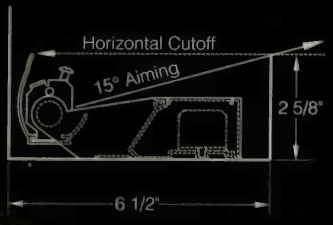


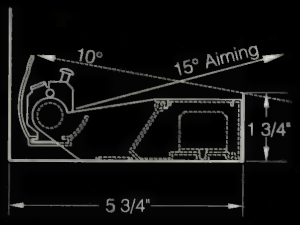
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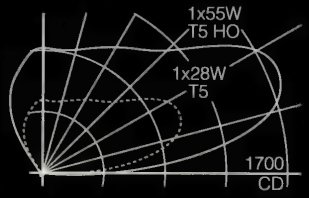
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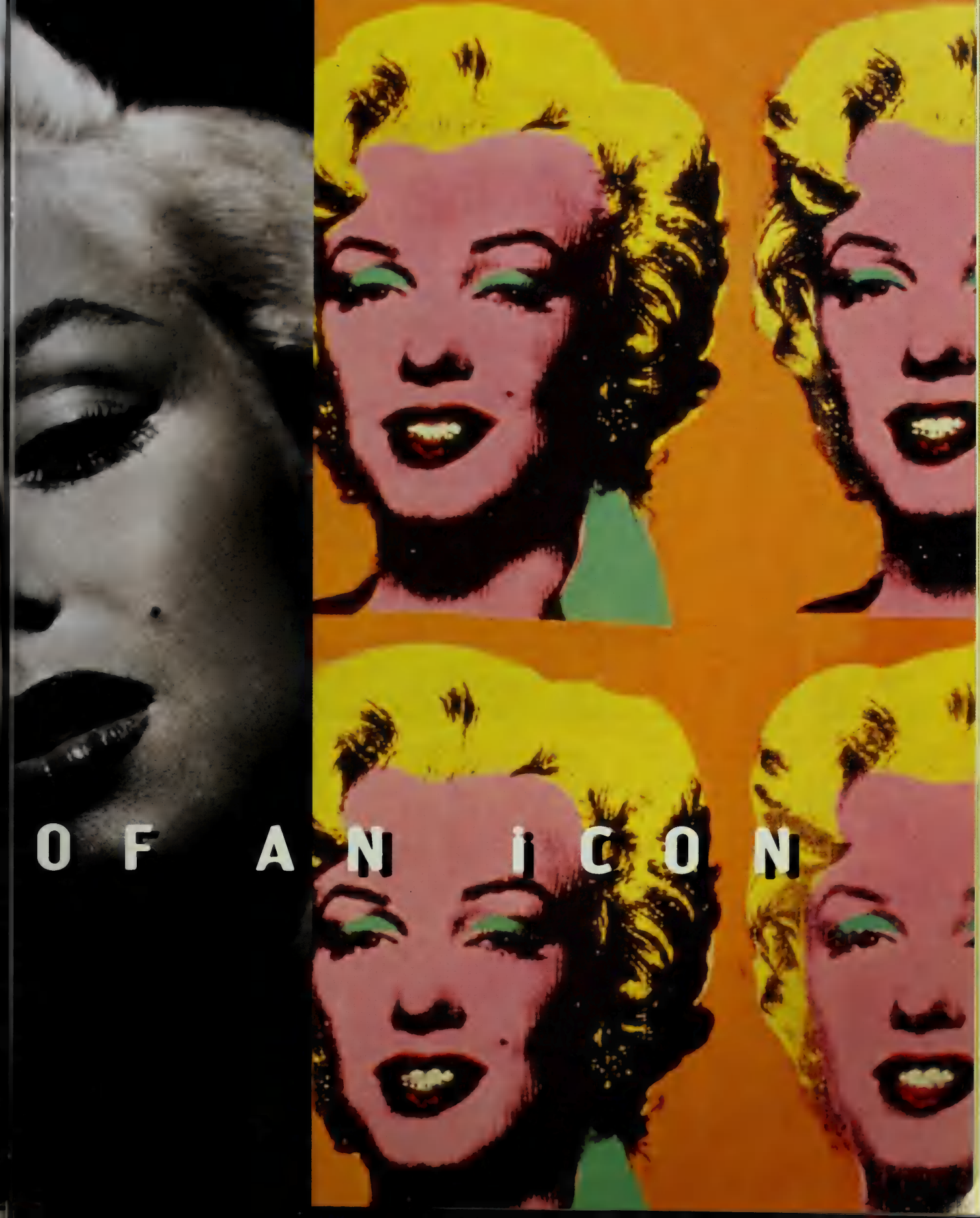
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OF AN ICON

Lighting is the finishing touch for San Francisco City Hall's renovation

By Nayana Currimbhoy

The San Francisco City Hall is the centerpiece of this city's civic center. Designed by San Francisco architects John Bakewell and Arthur Brown Jr., and constructed in the tradition of the Beaux-Arts style, the two-city-block-long building with its high dome is a bold symbol of the city's unshakable pride. Constructed in the wake of the 1906 earthquake and the inferno that followed, its opening in 1915 signalled the rebirth of the city.

In 1989, the Loma Prieta earthquake damaged the building so severely that officials were forced to close the structure. City officials and preservationists recognized that the damage provided a golden opportunity to renovate and upgrade the aging building. In 1995, after several contentious elections, voters approved the purchase of $300 million in general obligation bonds to fund improvements that would bring many areas of the building back to their original grandeur and convert other portions into modern workspaces. Soon after the bonds were approved, a comprehensive renovation and restoration of the building began.



The largest rotunda in the United States glows in the night sky, with the help of long-beam metal-halide spots installed on the roof and dome base. Other metal-halide fixtures are hidden on ledges and cornices.

The rebuilding of city hall was a Herculean task, which took more than three years, and involved 24 teams of architectural, design, and engineering consultants. To reinforce the building against future seismic events, each of its 600 columns was retrofit with a base isolator, and walls were stabilized, enabling the rest of the work to proceed safely. The work was comprehensive, including the installation of new lighting, electrical, and communication networks; new HVAC systems; and disability access; the renovation and remodeling of spaces for administrative offices; and the replacement of damaged materials. Exterior cladding and metalwork were cleaned, repaired, and refurbished, and the copper dome, which had patinaed with age, was gilded with gold leaf as Bakewell and Brown had originally intended.

Nayana Currimbhoy is the author of Designing Entrances *and is a regular contributor to* Record Lighting.

A continuous visual experience

Where areas were to be renovated, the philosophy was to create "a continuous visual experience," says Anthony Irons, AIA, who was in charge of

Project: *San Francisco City Hall Renovation*
Client: *City and County of San Francisco*
Architects: *Department of Public Works, Bureau of Architecture; MBT Architecture; Gensler; Simon Martin-Vegue Winkelstein Moris*
Architects; Finger & Moy Architects; Levy Design Partners; Cervantes Design Associates
Lighting designer: *Horton•Lees Lighting Design*
Historic preservation architects: *Carey & Company*
Engineers: *Forell/Elsesser Engineers (structural); Tennebaum-Manheim (consulting); SJ Engineers; Gayner Engineers (mechanical); FW Associates (electrical)*
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the project for the city architect's office. "We wanted it to look like no modern architect had ever been there." San Francisco firm Heller•Manus was the principal and supervising architect. Other key architects on the job were Finger & Moy and Komorous-Towey Architects. Historic preservation was the responsibility of Carey & Company, who created a special database to document each of the building's 1,000 rooms.

Relighting City Hall

Because electric lighting was still a new technology when the building opened, modern lighting had to be applied carefully, or Iron's ideal of the continuous visual experience would have been compromised immediately. Angela McDonald, principal of Horton•Lees Lighting Design, whose firm was initially commissioned to help create lighting for special events in the main hall, says, "the starting point of the design was an intensive study of the building's history, and its Beaux-Arts traditions." The firm soon became the lighting consultants for the entire project, for the restoration and enhancement of the lighting in public spaces and remodeled spaces, as well as for the new exterior lighting. The project included the renovation of 900 antique fixtures, and the manufacture of more than 1,600 historically based modern fixtures for use in office and public areas.

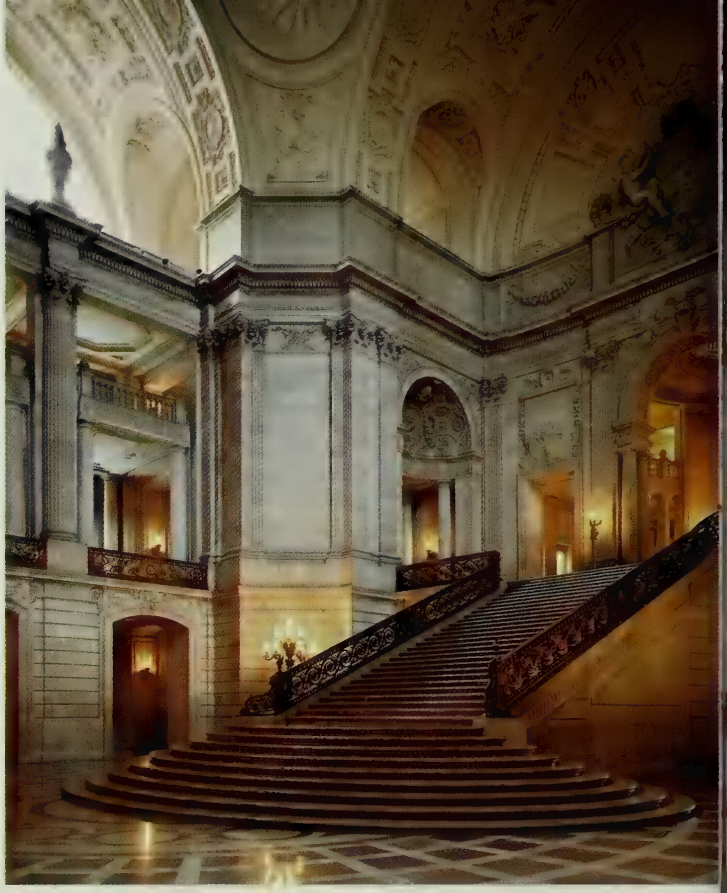
Original drawings and photographs were used as the basis for the design of the new fixtures. Robert B. Stokes of Taylor/Stokes Lighting of Sausalito, Calif., in conjunction with Paul R. Scott of Scott Architectural Lighting of Fairfield, Calif., manufactured the custom fixtures and refurbished the existing ones. Diffusers for the original

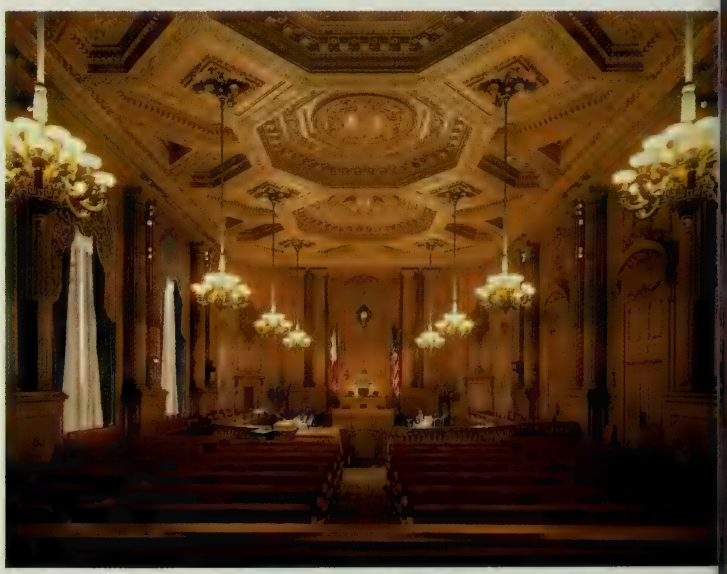
THE LIGHTING DESIGN'S STARTING POINT WAS A CAREFUL STUDY OF CITY HALL'S HISTORY AND ITS BEAUX-ARTS TRADITION.

pendant fixtures were shaped like shallow cones with rounded bottoms and were 14 inches in diameter. To provide comfortable, energy-efficient lighting, these dimensions were enlarged to 24 or 28 inches in diameter to accommodate two, four, or six 42-watt, triple-tube compact fluorescent lamps, as well as the occasional tungsten-halogen PAR downlight. These fixtures, used in most renovated rooms, were recreated using imported Italian glass diffusers.

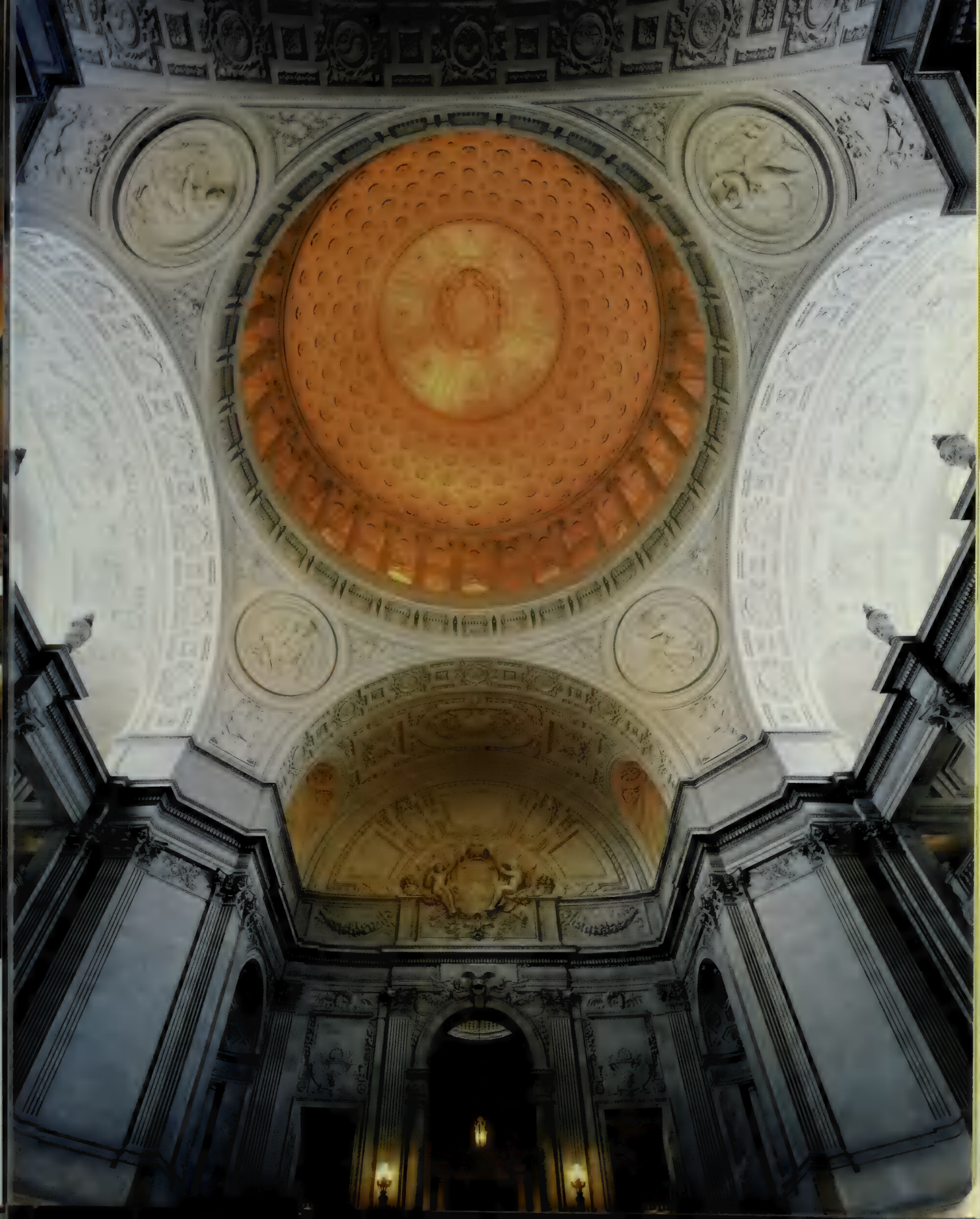
Throughout the building, the existing fixtures were stripped, refinished, rebuilt, and upgraded to meet current UL requirements. More than 200 surface-mounted ceiling fixtures, used mainly in corridors, were converted from the original incandescent designs to use 32-watt, triple-tube fluorescent lamps. The striking clear-glass diffusers seen on the cast-bronze fixtures throughout the public spaces are hand-cut lead crystal made in







The lower portion of the dome is illuminated by 36 300-watt PAR56 uplights mounted between the columns of the topmost gallery. Twenty-four additional PAR56s in the same location uplight the dome's apex. In the council chamber (above), the decorative chandeliers are supplemented by track lights mounted on custom, freestanding vertical poles concealed between columns on either side of the room. PAR38s accentuate the flag and front desk.







In the restored northern light court (left), which serves as a museum, daylight and restored hanging pendants are supplemented by dimmable PAR38s mounted on tracks concealed in the skylight mullions. In the mayor's public office (below), recessed PAR38s supplement the chandeliers and serve to highlight the period wood paneling.

France for this project. Frosted A-lamps previously used in these fixtures were replaced with clear tungsten-halogen lamps to accentuate the glass with intensity and sparkle. The dozen or so pendants remaining in the building were refurbished and relocated to the second floor. New indirect and lay-in fluorescent lighting was added in remodeled offices.

The rebuilding of the skylights over the light courts and the restoration and relighting of the grand rotunda are two of the most spectacular improvements. In 1977, the department of public works removed the large glass-and-steel skylights on both sides of the rotunda to protect

THE CITY HALL WHERE MONROE AND DIMAGGIO WED IS ONCE AGAIN THE PLACE FOR MARRIAGES AND PARTIES.

the building's occupants from falling masonry. Shortly thereafter, the formerly open space was crammed with a warren of offices. Now, skylights cover the reopened light courts, which can be rented by the public for special occasions.

The lighting plan for the light courts also includes extensive support for rigging, and more than 24,000 watts of additional power for special-event lighting equipment is readily accessible via receptacles located throughout each space. For temporary event use, these receptacles, as well as permanent architectural lighting, can be controlled from the architectural preset stations; a small, portable lighting console; or full-function theatrical consoles.

The lighting in the two-part, restored Baroque-style dome is soft and subtle. Thirty-six, 300-watt tungsten-halogen PAR56 lamps mounted between the columns that support the dome over the uppermost gallery uplight the surface of the lower portion of the dome, and 24 additional PAR56s are focused on the top portion of the dome. The decorative medallions mounted on the arches that support the rotunda are highlighted by spots mounted at the fourth-floor balcony level.

A grand gesture for Civic Center Plaza

The exterior lighting of City Hall was developed by Horton•Lees as part of the master plan to light the six building facades that face Civic Center Plaza. Designed to emphasize the strength, mass, and rhythm of the monumental building and to accentuate its classical detailing, the lighting plan for City Hall relies on more than 200 metal-halide floods. These lights graze the limestone facade and are mounted on ledges and cornices to hide them from view and reduce glare. The lighting designers used 3,000K, 100-watt metal-halide PAR38 lamps with electronic ballasts to correspond with the incandescent light from the refurbished historic lampposts at ground level and with the incandescent light washing the facades of adjacent buildings.

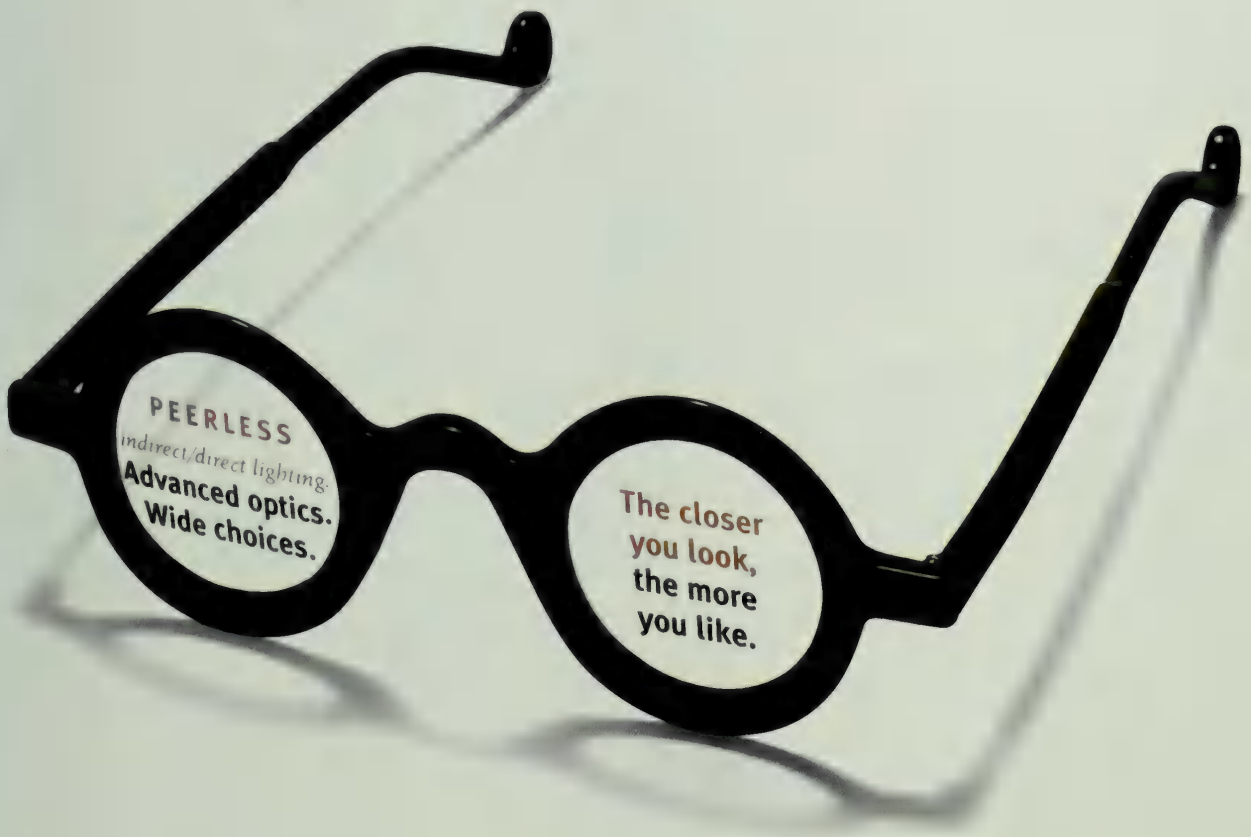
Custom filters installed on 20 of the accent lights reduce light between several narrowly spaced columns at the end of each facade, keeping the overall lighting effect uniform and allowing the maintenance department to keep a single type of standard lamp in its inventory. For the newly gilded dome, McDonald wanted to achieve sparkle without blazing light on neighboring buildings. Twelve long-beam metal-halide spots with remote ballasts installed along the roof and the base of the dome carve the edges of the golden dome away from the night sky.

The monumental project, though arduous, has won a number of preservation, construction, and architectural design awards. "It was a once-in-a-lifetime project for an architect," says Clark Manus, FAIA, principal-in-charge of the project at Heller•Manus. Best of all, the renovation of the building where Marilyn Monroe married Joe DiMaggio in 1954 has won the hearts of city residents who can once again admire the gracious interior and gather there for weddings and parties. ■

Sources

Custom fixtures: *Taylor, Stokes & Scott Architectural Lighting*
Historic fixture refurbishment: *Taylor, Stokes & Scott Architectural Lighting*
Track lighting: *LiteLab*
Downlighting: *Kurt Versen*
Indirect fluorescent: *Peerless*
Reproductions: *Rejuvenation*
Lay-in fluorescent lighting: *H.E. Williams; Zumtobel/Staff*
Indirect lighting: *Linear Lighting*
Undercounter lighting: *Alkco*
Exterior floodlights: *Phoenix*
Exterior uplights: *Hydrel*
Dimming system: *Strand*

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CIRCLE 63 ON INQUIRY CARD

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Gold- and silver-leafed-paper chandeliers float above halogen lamps positioned above red Japanese paper table lamps with heart-shaped mirrors that reflect light pools onto the table (left). Movable canvas panels and a wealth of line-voltage receptacles mounted 8 feet above the floor allow for reconfiguration of lighting displays (right).





"XXL," a 6-foot-diameter red dome lit with a single halogen lamp (left) frames a chandelier made with 34 printed and 50 blank sheets of paper pierced by rods illuminated by a PAR30. In the basement (opposite), folded-paper lanterns lit by 50-watt halogens hang over a 9-meter-long wooden table.

Expressive lighting fixtures cast a poetic glow in innovator Ingo Maurer's new SoHo showroom

By William Weathersby Jr.

Since the late 1960s, designer Ingo Maurer has produced luminaires at his studio and factory in Munich that merge sculptural form, cutting-edge materials, and metaphorical flights of fancy. An 8-foot-high gilded heart surrounded by bulbs sprouting wings was designed for a village in Italy, while a pendant combining a hologram of an A-lamp and a socket shaped like the profile of inventor Thomas Edison encapsulates a veritable history of illumination. "Calling Ingo's light installations 'systems' is just like calling Shakespeare's sonnets 'typesetting,'" muses designer Ron Arad, with whom Maurer collaborated on the Tel Aviv Opera House and other projects. In 1998, Maurer's work was honored with an exhibition at the Museum of Modern Art in New York City.



Last September, Maurer opened his first showroom outside his home base in Germany, a 2,300-square-foot space in New York City's SoHo district. Housed at street level and in the basement of an 1885 cast-iron-facade building constructed as a corset factory, the retail-space-cum-gallery presents Maurer's poetic creations as a kind of performance art that seems right at home in the neighborhood. The venue retained its good bones, including slender Romanesque cast-iron columns and an original ceiling of pressed tin and leather. Working with his in-house design team, Maurer created a neutral backdrop to showcase his fixtures in their best light. Crumbling walls were replaced with drywall, the bamboo floor was refinished, and a storage area was enclosed at the rear. "Most of the project focused on overhauling the wiring," says showroom general manager Mark McKenna, who previously spent two years as a member of the Munich-based lighting design team. "With 35 to 50 luminaires to be mounted all around at any given time, we wanted to make sure we had access to plenty of power sources."



On the main level, line-voltage receptacles are mounted 8 feet high along the perimeter walls and are covered with magnetic caps when not needed for luminaire display. A series of movable canvas panels attached to the walls serve as backdrops—and often as mounting surfaces for the lighting fixtures—and can be easily reconfigured for changing displays. Because the original ceiling could not be altered in the rented space, rods supporting a lighting track were suspended from the original chandelier rosettes. The track fixtures were fitted with 12-volt halogen lamps to provide ambient and spot lighting.

The main light show is Maurer's creation and includes the "XXL" luminaire commissioned by fashion designer Issey Miyake. Floating near the front of the showroom above a brushed-steel table, it incorporates a 6-foot-diameter egg-shaped fiberglass dome, whose red interior surface pulsates with a glow from a 300-watt halogen lamp. Nearby, a chandelier inspired by the work of mobilist Alexander Calder is a balancing act of miniature mirrors, spheres, weights, and a 50-watt halogen lamp.

Downstairs, the concrete floor and cast-iron columns were refinished, and red-painted sliding wood doors were added to close off utility space. To support versatile lighting displays, five ceiling slots were fitted with hidden transformers that accommodate low- or line-voltage luminaires. A recent series of folded-paper lanterns illuminated by 50-watt halogens hangs over a 9-meter-long wooden table.

Throughout the showroom, offbeat furniture found at flea markets adds to the downtown gallery ambience. And as a complement to the lighting fixtures for sale, Ingo Maurer sponsors special art exhibitions twice a year. The inaugural show featured the light-inspired work of Manhattan schoolchildren. ■

William Weathersby Jr. is a writer based in Westport, Conn.

Project: *Ingo Maurer Showroom, New York City*
In-house design: *Ingo Maurer, principal; Bernhard Dessecker, Hagen Sczech, Mark McKenna, design team*
Electrical design: *Mauceri Electric*

Sources
Luminaires: *Ingo Maurer*
Halogen track lighting: *Dedolight*

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CIRCLE 44 ON INQUIRY CARD

Inventive use of off-the-shelf lights help a loft-style Seattle house glow on a budget

By Sheri Olson, AIA

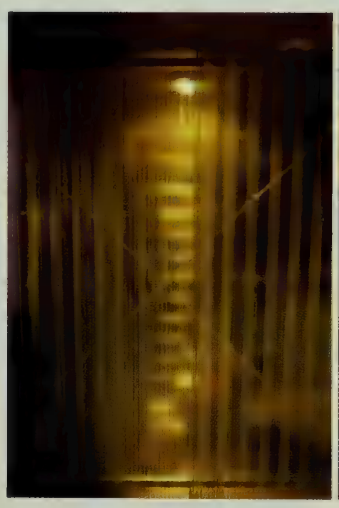
With sophisticated wit and a tight budget, architect Don Carlson, FAIA, transformed a remodeled tract house with strategically placed off-the-shelf lights. "It's an exercise in getting the most drama from the cheapest fixtures," says Carlson of Carlson Architects, Seattle. The 20-year-old hillside house was decrepit from years of misuse, but had knockout views of Mt. Rainier and Lake Washington. Carlson stripped the existing 1,600-square-foot structure down to its wood frame and created a large open space in the middle by cutting away half of the second floor. The only interior walls are around the bathrooms. "It's a loft lifestyle in the suburbs," he says.

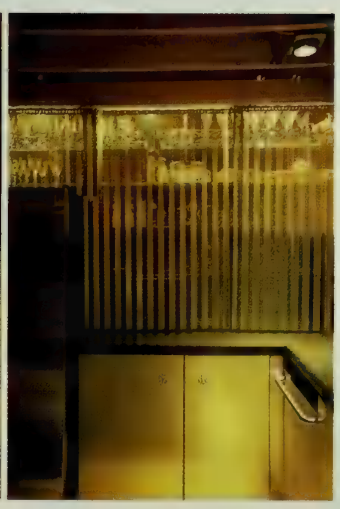
At the front door, a covered entry space defined by exposed wood framing glows yellow-orange from two incandescent 100-watt floodlights. At night, with the rain coming down on all sides, the house becomes a lantern in a landscape dominated by gray skies.

A new 400-square-foot pavilion defines a covered entry and contains a third-level office open to the rest of the house. The house employs a complex and mutable mix of direct light from incandescent fixtures, reflected light from fluorescent lamps tucked behind ductwork, and clip-on lights for flexible task lighting. The industrial-style lamps complement the rawness of the house's exposed sheet-metal ductwork, floor joists, and prefabricated roof trusses. Both exterior and interior fixtures independently use dimmers, making it easy to adjust light levels. "We use different combinations of lights for different events and times of day or year," says Carlson. "I'm continually experimenting."



Light reflecting off wood surfaces inside the house picks up a warm glow, contrasting with Seattle's often gray, rainy skies.





At the front door, light filters down from above into the main living space and through the steel grating of the stairs that link the second and third levels. Four 75-watt floodlights are mounted out of sight at the upper level and cast a grid of shadows on the plywood and gypsum board walls. The deep sides of an adjacent 8-by-4-foot skylight are lined with sheet metal. "On our rare sunny days, the sheet metal glows blue like the sky," says Carlson.

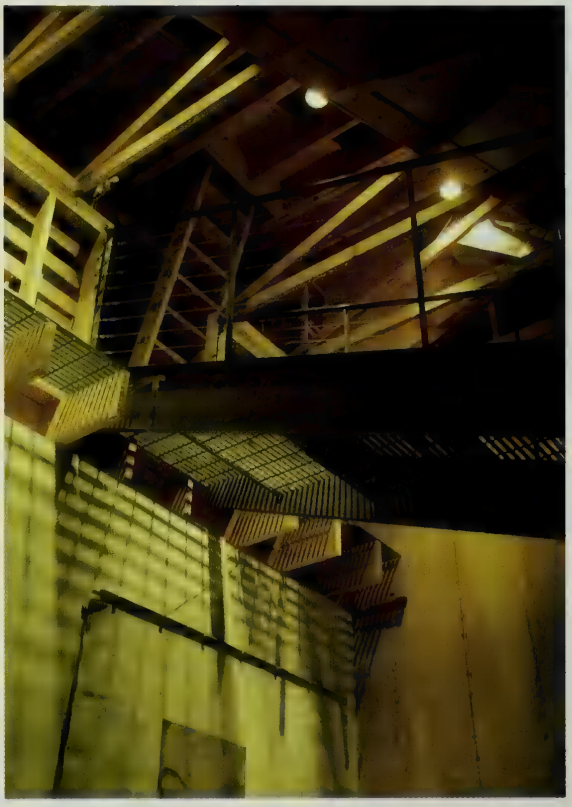
A curtain of perforated, corrugated metal suffuses the alcove kitchen with a soft glow from dimmable 60-watt bulbs in inexpensive porcelain sockets tucked behind the valance. To heighten the trickle-down effect, the top shelves (holding glassware and other delicate items) are wire, while solid shelving further down blocks the light. Over the sink, three can lights—intended by the manufacturer to be recessed but left exposed as part of the industrial-design vocabulary—are mounted between joists and meticulously rewired to snake between water pipes in the ceiling. Above the butcher-block center island is a clamp-on spotlight with a 50-watt halogen bulb. "Since the light is reflecting off wood surfaces, it's warm, like in a cabin," says Carlson.

A high-tech chandelier, made from an exposed heating duct and six exposed can lights, runs the length of the house through the open web of the roof trusses. Triangular metal brackets cantilever the fixtures, fitted with 50-watt halogen bulbs, off the side of the duct to uplight the underside of the plywood roof deck-

Project: *Carlson residence*
Architect: *Carlson Architects—Carlson, FAIA, principal*
Contractor: *Rewald Construction*
Sources
Downlights: *Halo*
Porcelain sockets, PAR lampholders, dimmers and outlets: *Leviton*

WWW *For information on this project, go to* **Projects** *at:* **www.architecturalrecord.com**





Lamps in simple lamp holders hidden in the ceiling trusses (photo below) casts the shadows of the stair gratings on the two-story dining room walls (left). On sunny days, the living area is generously skylit from above (bottom).

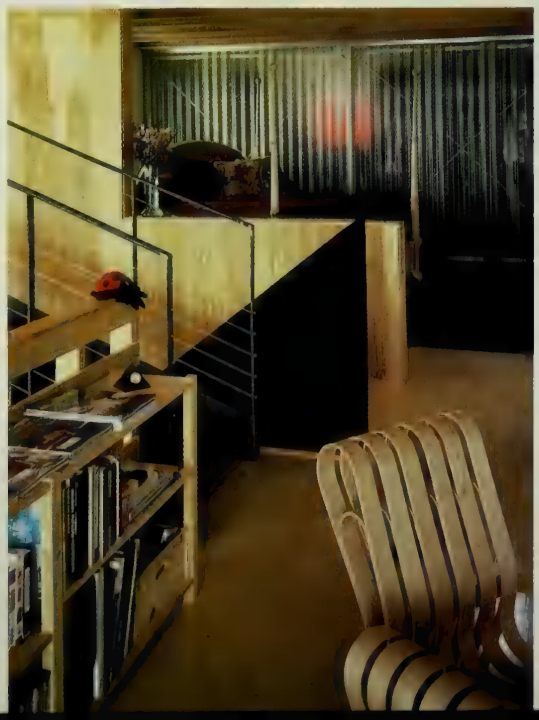
ing, which was whitewashed to better reflect the light. Switched outlets mounted on wood runners at the peak of rafters accommodate clamp-on lamps.

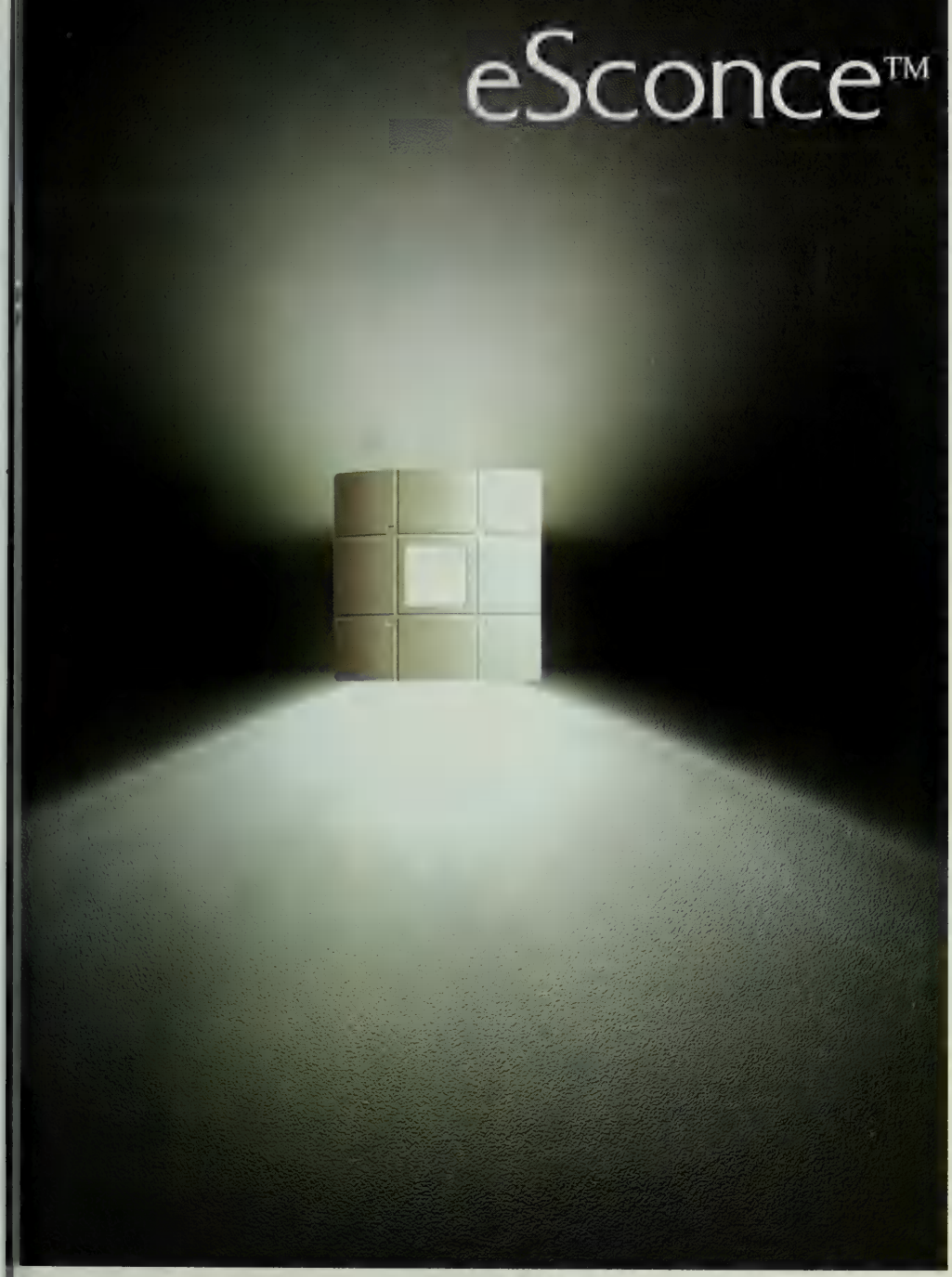
Along the back wall of the master bedroom, the closet doors are made of sheets of industrial-weight corrugated fiberglass hung on overhead tracks and backlit by five 75-watt halogen lamps. The varying

IT'S AN EXERCISE IN GETTING THE MOST DRAMA FROM THE CHEAPEST FIXTURES.

colors of the clothes float mysteriously behind the screen and are overlaid by the geometric pattern of the aluminum-rod cross-bracing that stiffens the doors. "The clothes are part of the composition," says Carlson, who adhered to fire codes that require the use of shielded lamps by using outdoor fixtures in the closet.

Carlson and his electrician (who is also a sculptor) exercised great care in neatly laying out all the circuit runs to prevent a haphazard presentation. Such attention—which doesn't necessarily add to the cost of the installation—is rare when contractors are hired to wire a space with an unfinished ceiling and walls. In a city that has become known for its abundance of young millionaires, it is refreshing to see what a little [illegible] can accomplish for just a few bucks. ■





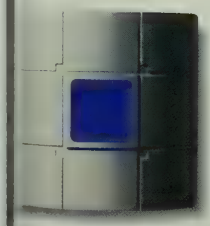
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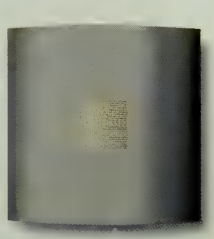
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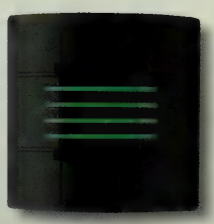
"charm strikes the eye, but merit wins the soul"



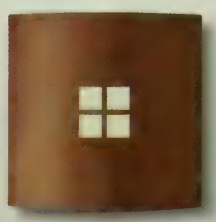
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LEDs make their architectural lighting debut

THE LIGHT-EMITTING DIODE'S GREATEST ATTRIBUTE HAS ALWAYS BEEN ITS 100,000-HOUR LIFE; HIGH LIGHT OUTPUT HAS BECOME ITS LATEST BENEFIT, BUT THE COST IS HIGH.

By Lindsay Audin

Until recently, light-emitting diodes (LEDs) appeared mostly in control panels, electronic devices, and exit signs. Now a variety of new products employing them have appeared, and many are direct replacements for incandescent lamps. While their cost makes them inappropriate for general lighting, they work well in decorative, outdoor, advertising, and signage applications. Where lamp replacement is difficult or poor maintenance is a problem, their very long life—on the order of 100,000 hours—makes them ideal.

Several innovations spurred the creation of these novel devices, including the development of the bluish-white, 8000-degree Kelvin LED. Furthermore, LEDs have become much brighter in recent years. At 5 to 30 lumens per watt, they still rate low compared to compact fluorescents, but they are rapidly improving. The efficacy of many of the new LED sources is presently comparable to or greater than most incandescent lamps of equal size, thus cutting electric costs and connected loads. Blue LEDs have now been combined with red and green LEDs in one device, fostering combinations that produce nonprimary colors. The use of standard base types makes them interchangeable with incandescent and some halogen lamps.

One version of these new devices, by Color Kinetics, has merged this technology with sophisticated power line carrier (PLC) control systems that change the lamp's color and brightness by mixing the output of different-colored LEDs within a single unit, producing up to 16.7 million colors. Of special interest is the iColor MR, which works in most standard MR16 fixtures. This lamp's color and output can be rapidly changed, adding stunning effects without complicated wiring and relays. A linear unit with similar capabilities is available for use in coves.

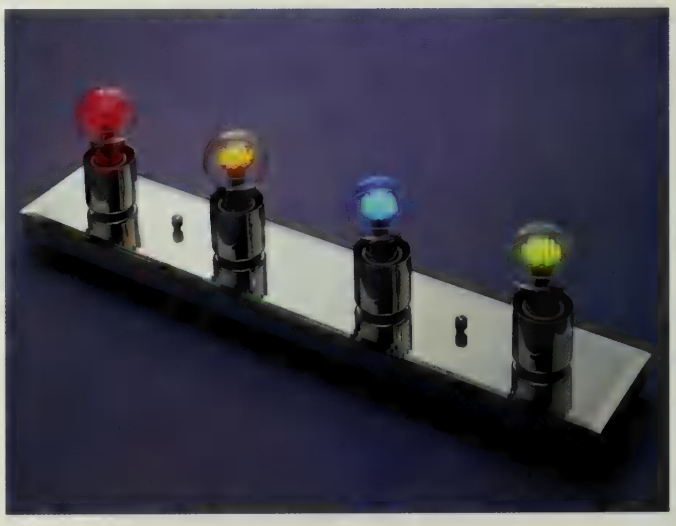
Others by LEDtronics, CCI Lighting, and Mule Lighting are designed as direct replacements for the standard A-lamp, providing a variety of colors and distributions. Miniature lamps by Lighting Technology Inc., designed mainly for indicator and direct-current decorative applications, use both large LEDs and multiple LEDs, depending on the application.

Before purchasing LEDs, users are cautioned to check their specifications, because they vary from product to product. LEDs may outlast other lamps, but their output drops over time. Some manufacturers of the LEDs rate the unit lifetime by predicting when the average light output will drop by 50 percent, while others consider it the point at which 50 percent of the units have burned out (and by then the survivors will be rather dim). Overdriving LEDs initially will cause them to be very bright, but both lamp life and output quickly suffer.

Light distribution, a function of the built-in lens that surrounds the diode chip, may vary greatly from an incandescent lamp of the same size and shape so a few tests with samples are in order. Also, cost is dropping, but still quite high. The list price for one iColor MR16 lamp is $159, but over its lifetime, the iColor unit will likely outlast 40 or more of the standard MR16s. Single-color LED units by other manufacturers are also pricey, falling in the range of $40 to $130 per lamp. At those prices, it pays to consider where they will be operated.

Like all solid-state devices, LED units may deteriorate if placed in poorly ventilated fixtures and allowed to overheat. Some units are specially designed to handle this kind of torture, others are not, so carefully consider the choices. Likewise, take into account the design life of the fixtures: if the fixture dies before the LED lamp, it is likely that both will be discarded during replacement. ■





An MR16 lamp can be replaced by the iColor (top) whose color and output are controlled by a chip. LEDtronics makes replacements for A-lamps (bottom).

Lindsay Audin is president of Energywiz Inc., an energy and technology consulting firm.

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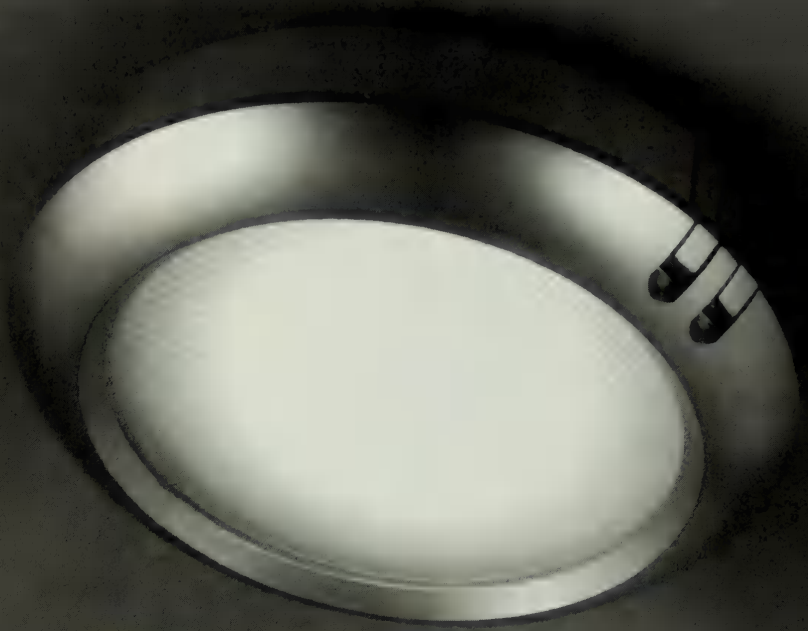
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CIRCLE 68 ON INQUIRY CARD

Rethinking indirect fluorescent fixture design

THE STORY OF HOW THE NEW T5 HIGH-OUTPUT LAMP, COUPLED WITH ADVANCED OPTICAL DESIGN, INSPIRED ONE MANUFACTURER TO REEXAMINE ITS FIXTURE-DESIGN PHILOSOPHY.

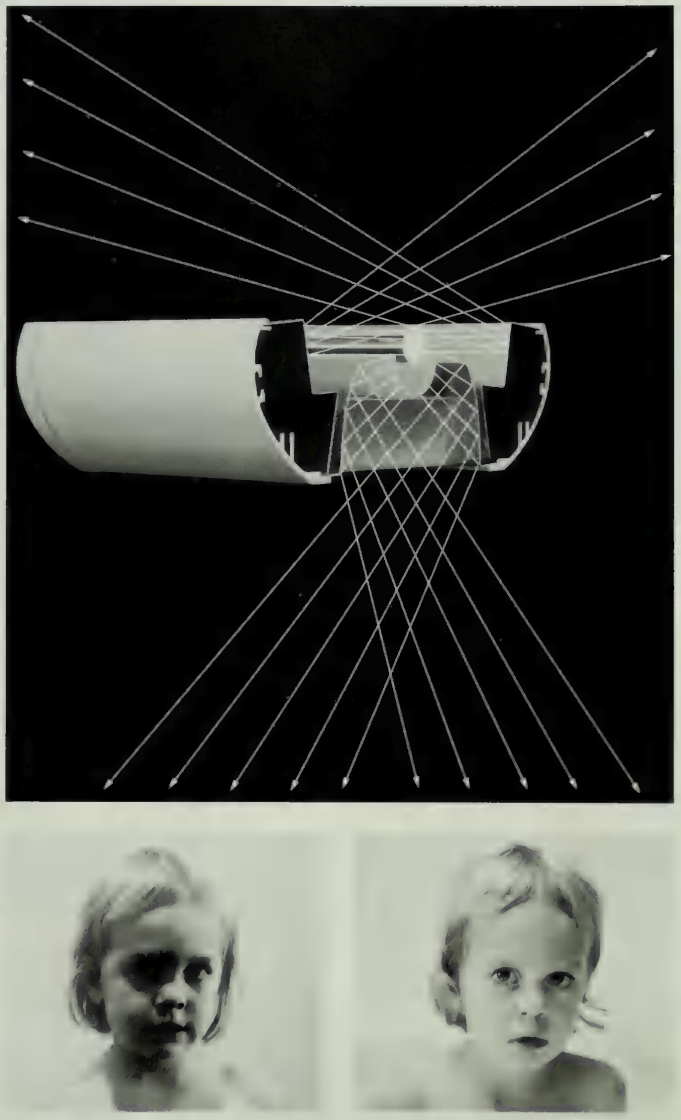
By Charles Linn, AIA

Over the last 40 years, Peerless Lighting of Berkeley has established a reputation as the lighting industry's premier designer and manufacturer of indirect fluorescent lighting products. Part of the company's renown derives from its long-term campaign to persuade skeptical, bottom-line-oriented architects, lighting designers, and building owners that their premium-priced, extruded-aluminum tubes, which bounce light off the ceiling and hang from aircraft cable, do a better job of lighting spaces like schools and offices than do the ubiquitous, commodity-grade fluorescent troffers. It wasn't an easy sell. Anyone with a light meter could stand directly under a troffer and show that it was putting out more light than what was being bounced off a ceiling lit by a system of indirect fixtures. For some specifiers, the case was closed.

But Peerless' argument was persuasive. Bouncing light out over a room's ceiling and other surfaces is better than using troffers to dump mass quantities of light toward the floor because it produces a more comfortable visual environment. To achieve even illumination, the firm developed sophisticated optical systems that spread light uniformly over the ceiling plane. By comparison, parabolic troffers, with shiny, ice-cube-tray-like louvers, produce high brightness-to-contrast ratios, dark ceilings, and scallops of light with sharp shadows along walls. They are plagued by glare and hard to look at. With indirect lighting, the uniform light bouncing off the ceiling softens shadows and virtually eliminates reflections on VDT screens. The only problem is that indirect light also diminishes the visual definition and modeling produced by shadows, so much so that some surfaces appear dull and lifeless. Some people describe this as "the cloudy day effect."

One way to solve this problem is to design an indirect fixture to add direct lighting that is projected beneath the fixture. A number of other manufacturers have been producing such designs already, although they have several disadvantages. It was difficult to create an optical system that can control the light from a T8 fluorescent lamp—which, at 1-inch in diameter, was until recently the smallest, most efficient fluorescent tube available—while keeping the fixture housing compact. And most of the light from the fixtures still goes up to the ceiling over them, so they can only be spaced 8 to 10 feet apart. A lack of research that showed exactly how much light should go downward without creating glare beneath the fixtures resulted in some manufacturers erring on the safe side, trapping much of the light behind perforated metal screens wrapped beneath the fixtures, actually lowering their efficiency.

Peerless stayed away from direct/indirect until late last year when the company's vice presidents Doug Herst and Peter Ngai (Peerless is now owned by Lithonia) announced that the firm would manufacture a new line of fixtures with uplights that would be balanced with the addition of a carefully controlled amount of downlight. What made this product possible was Osram's new high-output T5 lamp. The lamp has approximately twice the light output of a T8 but is only ⅝ of an inch in diameter. "The T5 high-output lamp was a radical new product," says Herst. "The lamp was so small, compared to a typical reflector cavity, you could get a very broad distribution with extremely high uniformity on the ceiling, so the fixtures could be small." However, the T5 high-output lamp



Ray tracing (top) shows the direct/indirect distribution of Peerless Lighting's new Envision I/D fixture. Direct downlight (below left) creates harsh shadows on the child's face. The new fixture combines indirect and direct lighting to create a uniform luminous distribution without eliminating the shadows that give the face depth and definition (below right).



L'Arte che illumina

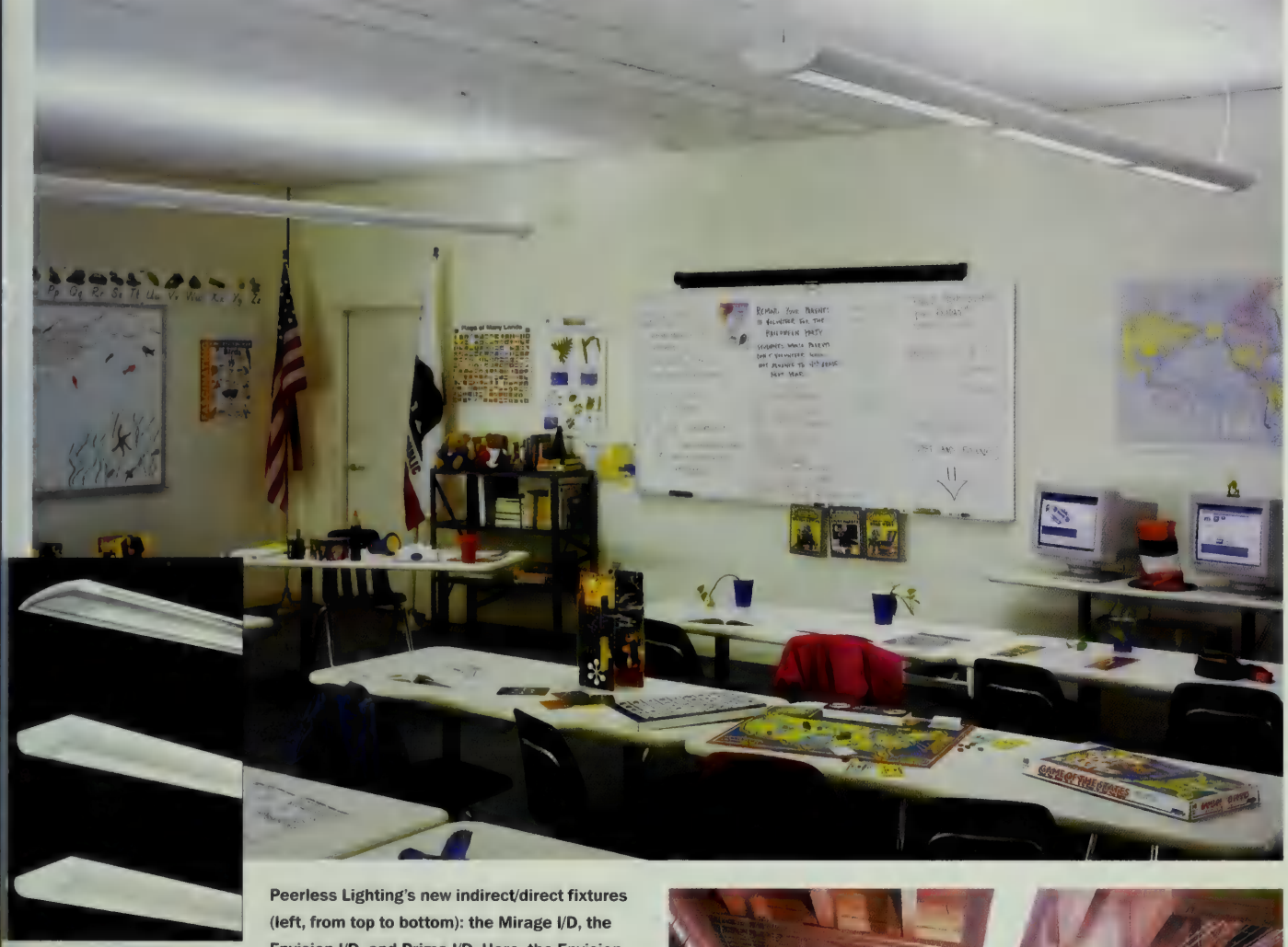
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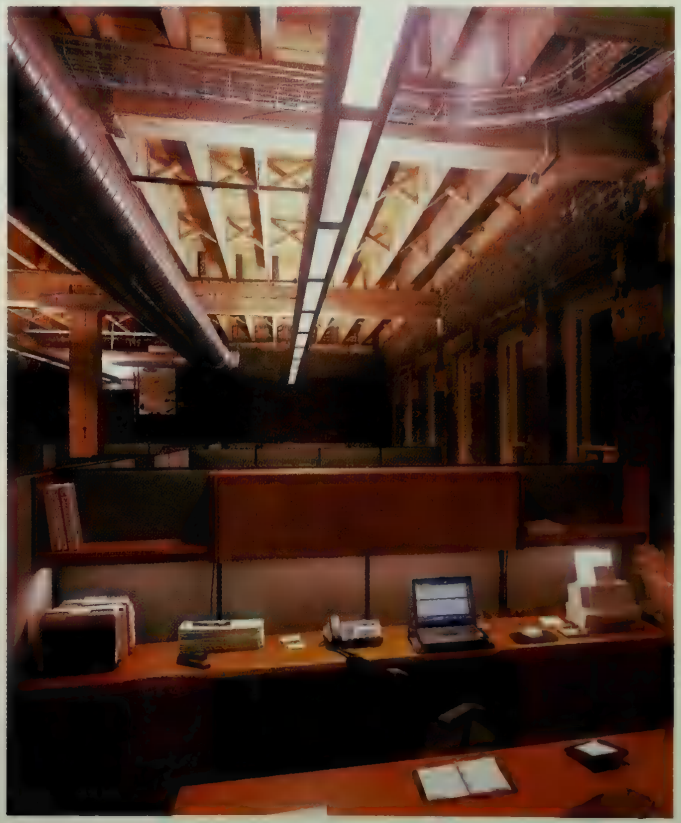


Peerless Lighting's new indirect/direct fixtures (left, from top to bottom): the Mirage I/D, the Envision I/D, and Prima I/D. Here, the Envision I/D is used in a classroom and in the offices of Chipotle Mexican Grill, Denver, Gensler Associates, architect; McFall, Konkel and Kimball, lighting consultant.

has approximately twice the light output of a T8, so creating an indirect fixture that also produced a direct component that was not too bright wasn't as easy as punching holes in the bottom of the fixture housing—the light would be much too bright if not carefully controlled. Aided by new research from a study conducted at the Lighting Research Institute at Rensselaer Polytechnic Institute in Troy, N.Y., that tested subjects to see how much direct light they could comfortably accommodate, Ngai developed a special diffuser that distributes about 40 percent of the lamp's light below the fixture. The balance is reflected off the ceiling. "At 60 percent downlight and 40 percent up, you get a pretty harsh environment," says Ngai. "With 60 percent of the light going up and 40 percent down, now you have pretty nice fill light, yet objects still maintain plenty of shadow and highlight."

One of the major advantages of the new Peerless fixtures is that they can be spaced 12 to 15 feet apart in a room that has a 9-foot ceiling. This translates into a savings of up to one-third on the costs of hardware, labor, and electrical distribution. In addition, suspension cables and electrical feeds are spaced on a grid of 4-foot multiples, so that even spacing of these items throughout the length of a run is assured.

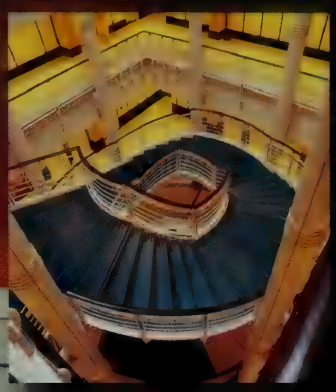
Peerless Lighting is not alone in its adoption of the new T5 lamp. Look for direct/indirect fluorescent fixtures from Ledalite, Litecontrol, Neoray, and Focalpoint. ■





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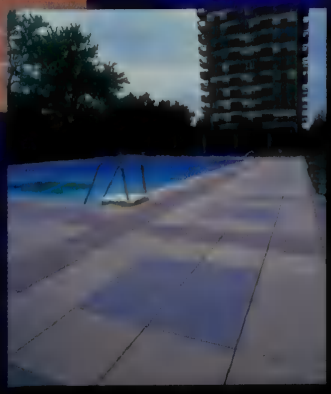
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Lighting Briefs

The lighting options on this page and the products on page 191 highlight some **new ideas for a hotel** lobby, guest room, bar, or restaurant, whether the mood is classical, modern, or **whimsical.** *Rita F. Catinella*



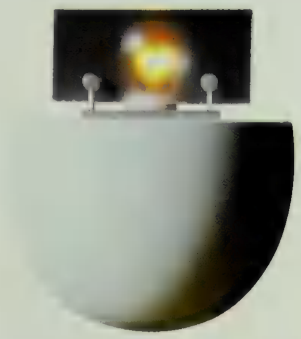
▲ Intergalactic lighting
The two oval and round glass shade styles in Neidhardt's Galaxy series are offered as either a ceiling-mounted fixture or as a pendant fixture (shown). These hand-blown shades can be specified with a choice of blue, amber, or clear glass. The fixtures are lamped with a medium-based mirror reflector lamp, maximum 75 watt. 800/978-8828. Neidhardt Inc., Redwood City, Calif. **CIRCLE 201**



► A bit of the classics
The La Violette wall sconce is part of Baldinger's Classic Collection. Shown here in antique brass finish with ivory shirred fabric shades, the light functions with incandescent, halogen, or high-lumen compact fluorescent lamps with electronic ballasts. Like most of the new wall sconces from Baldinger, the lights are ADA compliant and can be used in commercial, hospitality, or residential applications. 718/204-5700. Baldinger Architectural Lighting Inc., Astoria, N.Y. **CIRCLE 200**



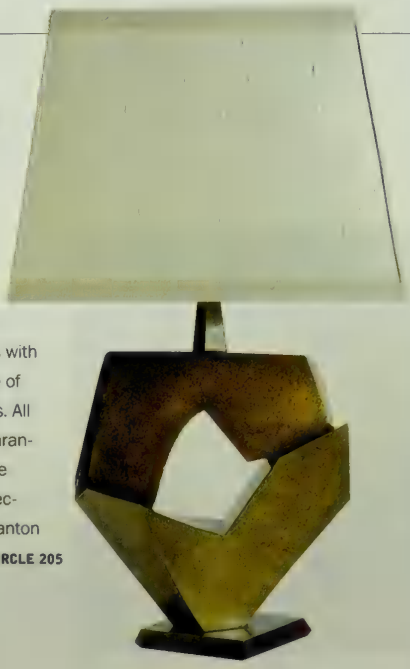
▲ Custom cast lighting
Artist Joan Sherman's chandeliers, tables, fountains, and decorative art objects are cast directly from the actual organic materials that inspire them, using a method called "live burn-out casting." Sherman creates high-end, UL-listed custom lighting fixtures, such as the Ribbon sconce (shown) in materials such as bronze, crystal, and hand-blown glass. 212/387-0866. Joan Sherman Decorative Arts, New York City. **CIRCLE 203**



◄ Dine by moonlight
Lunalite cast-ceramic wall sconces feature a subtly irregular hand-painted surface suggestive of the moon. There are three sconces in the collection, all exaggerated bulbous shapes offered in ice blue, charcoal, or bronze. A wafer-thin Plexiglas lens, supported by anodized aluminum hardware, shades the bulb. 612/339-7746. Emily McLennan, Minneapolis. **CIRCLE 202**



▲ Outer space
The Meteor wall sconce, designed by architect Rae Douglass, projects rainbow light patterns onto its immediate wall surface. The reflector disk of the fixture can be either tilted, warped, or cut into standard and custom shapes to create a variety of lighting effects. The fixture can be used alone or grouped together to transform a wall into a tapestry of light and color. The fixtures above are shown in annealed copper, but are available in a variety of other finishes. Douglass has also designed a selection of mobile lighting systems. 520/327-1581. Light Ray Solutions Inc., Tucson. **CIRCLE 204**

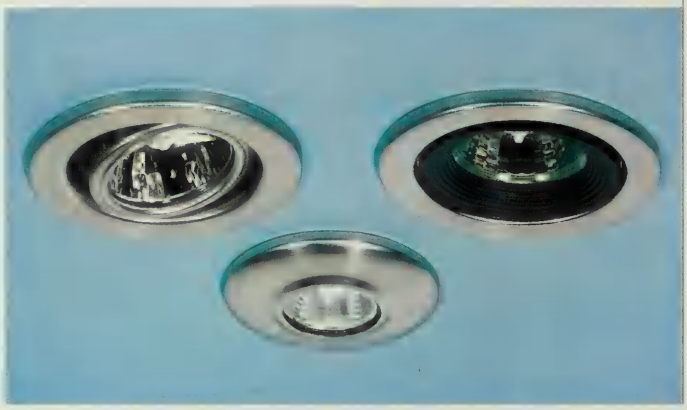


► Bronze table lamps
A limited edition of cast-bronze table lamps, which reflect sculptural themes long explored by artist Bruce Stanton, apply original forms and museum-quality production techniques to foundry cast bronze. The collection features four designs with silky patina surfaces in a range of reds, browns, golds, and greens. All lamps come with a lifetime guarantee, including any defects to the base, patina, hardware, and electrical work. 888/804-0679. Stanton Design, Santa Barbara, Calif. **CIRCLE 205**

Lighting Briefs

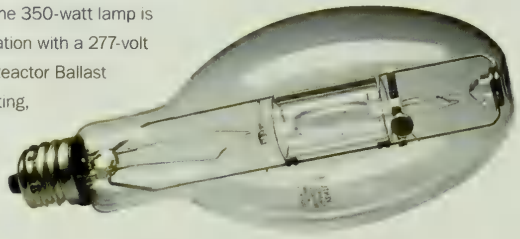
▼ Brushed-nickel finish added

W.A.C. Lighting's miniature low-voltage recessed trims are available in a new brushed-nickel finish. These trims are offered in a broad range of styles and can be used under-cabinet, in-cabinet, and in a variety of other task-lighting functions. The miniature fixtures can be installed to wash a wall with an even light and graze textured walls to highlight specific areas, adding drama to a residential or commercial space. Miniature recessed trims can be easily installed on a finished ceiling employing a variety of housings, or often without housings in other applications. 800/526-2588. W.A.C. Lighting, New York City. **CIRCLE 206**



▼ Venture into energy savings

Venture Lighting's 350-watt, high-performance Uni-Form pulse-start lamp-ballast system provides higher maintained-lumen output than the 400-watt position-oriented lamp it was designed to replace. When the 350-watt lamp is used in combination with a 277-volt energy-saving Reactor Ballast with ignitor starting, the system saves approximately 80 watts per fixture or $128 over the 20,000-hour life of the lamp, compared to standard 400-watt technology. 800/437-0111. Venture Lighting, Solon, Ohio. **CIRCLE 208**





◄ A star is born

When mounted flush to walls, Radial Tapestry luminaires emit light in a starburst pattern, reaching 6 feet out from the housing. Sconces can also be mounted recessed, on three-dimensional background shapes, and on ceilings to create special effects. ADA-compliant, the light is ideal for hotels, theaters, or other contract lighting applications. 914/698-5959. D'ac Lighting, Mamaroneck, N.Y. **CIRCLE 210**



◄ Beam me up, Scotty

Designed by Adam Tihany, the Scapebeam decorative acrylic pendant features a frosted exterior and a clear end that diffuses light evenly over the fixture surface and projects light down when suspended by a fiber-optic cable. When teamed up with the remote illuminator, color wheel, and controls, the fixture can be programmed to glow over six colors. It can be used as an interior or exterior pendant mount. 210/227-7329. Lucifer Lighting Co., San Antonio. **CIRCLE 207**

► Become more defensive

The Defiant series of vandal-resistant, wall-mounted luminaires provide high-output, low-glare lighting suited for damage-prone applications in outdoor public environments such as parking garages, sports facilities, apartments, schools, and transit facilities, wet or dry. Illumination is provided by a choice of High Intensity Discharge or Triple Tube compact fluorescent lamps. 800/865-5954. Morlite Systems Inc., Erie, Pa. **CIRCLE 209**



▼ A warm welcome

Starfire's exterior column- and wall-lighting entrance brackets provide ambient area lighting when mounted on outside building columns, walls, and entryways. The lights are shown below on the Council on Foreign Relations in New York City, but are suited for a range of environments, including office complexes, upscale retail, and hospitality. The lights shown here feature incandescent lamps, satin brass housing, and "seeded" glass panels. 800/443-8823. Starfire Lighting, Jersey City, N.J. **CIRCLE 211**




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Lighting Briefs



► No lightweight

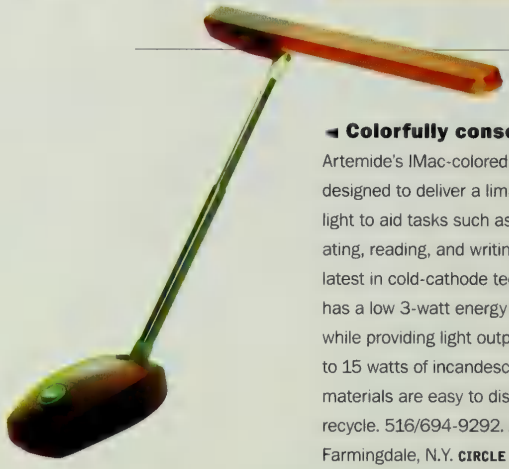
The Fortebraccio ("strong arm" in Italian) collection of desk, floor, and wall-mounted fixtures feature conical shades, affixed to counter-balanced single or dual lamp arms with a center rotating vertical axis. A choice of handles extend down and out at the front of the shade for safe, precise placement of the lamp head. The light's arm is constructed of die-cast metal, galvanized for the natural or colored versions; chrome or nickel-plated in opaque black for the other versions. Energy-efficient, candelabra-base 60-watt incandescent lamps, 100-watt A-19 incandescents, or miniature 100-watt T-10 halogen lamps provide illumination. 212/989-6265. Luceplan USA Inc., New York City. **CIRCLE 212**



► Expansion of series

The Avante series of recessed direct/indirect fluorescent lighting for small and large area applications has been expanded. Avante offers fixtures with symmetric and asymmetric light distribution, allowing design flexibility, and is the only recessed direct/indirect lighting system with companion wall sconces. 770/922-9000. Lithonia Lighting, Conyers, Ga. **CIRCLE 213**





◄ Colorfully conscientious

Artemide's IMac-colored e.light is designed to deliver a limited amount of light to aid tasks such as computer operating, reading, and writing. Using the latest in cold-cathode technology, e.light has a low 3-watt energy consumption while providing light output comparable to 15 watts of incandescent lighting. The materials are easy to disassemble and recycle. 516/694-9292. Artemide Inc., Farmingdale, N.Y. **CIRCLE 214**

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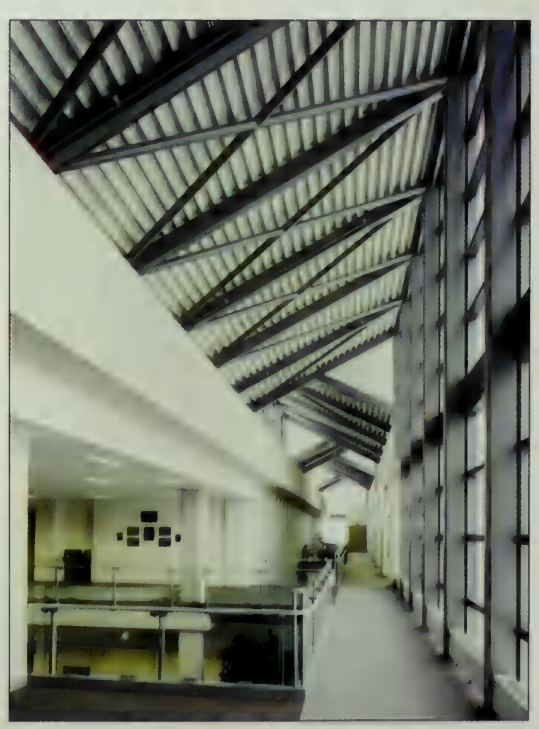
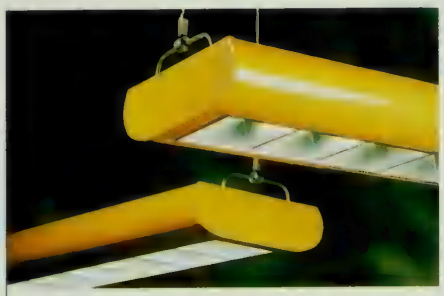


Photo: MacAlester College, St. Paul, MN
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Lighting Briefs

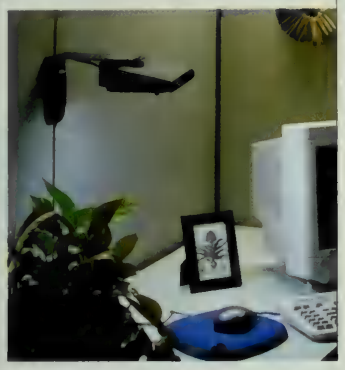


◄ Atrium option

Solaris utilizes modern small-ballast technology for a compact, contemporary look for classrooms, high-ceiling offices, and large atrium areas. The parabolic louver provides lamp shielding and a visual highlight. The reflector system allows designers to vary distribution and light levels for specific spaces in an environment. In addition to a standard 60 percent uplight, 40 percent downlight distribution, four other price-efficient options are available. Reflectors can be changed in the field to adjust distribution, as needed. 509/924-7000. Columbia Lighting Inc., Spokane. **CIRCLE 216**

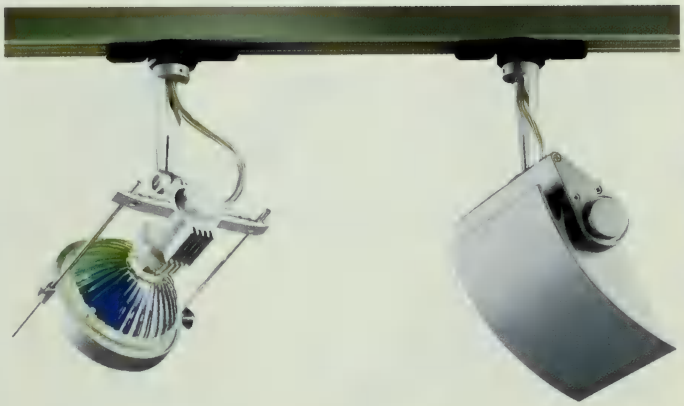
▼ Office help

Luxo's multidirectional, adjustable asymmetric task-light series mounts under cabinets, under shelves, or on office-system panels or walls. A swivel mechanism allows a 325-degree rotation of the unit, left or right, directing the shadow-free light across work surfaces rather than directing it on them. 914/937-4433. Luxo Corp., Port Chester, N.Y. **CIRCLE 215**



► Bright Italian designs

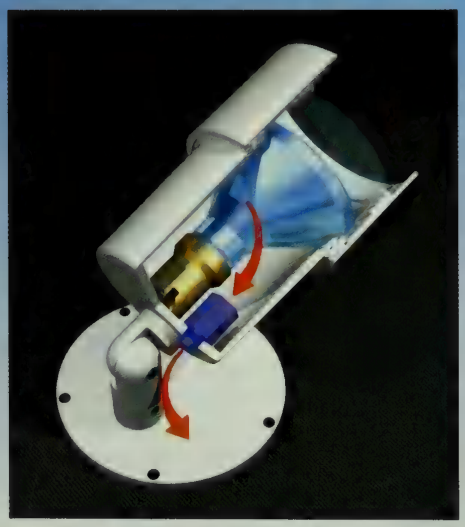
Two of Lucitalia's latest lights, Krisma and Karma, are line-voltage-adjustable fixtures made with an adapter for track mounting or with a canopy for wall or ceiling mounting. The lights feature a die-cast aluminum body and a Technopolymer base. Karma features a parabolic reflector with an asymmetric light pattern. 011/39/002/612-6651. Lucitalia SpA, Cinisello, Italy. **CIRCLE 217**



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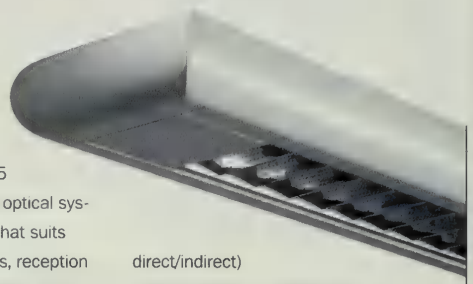
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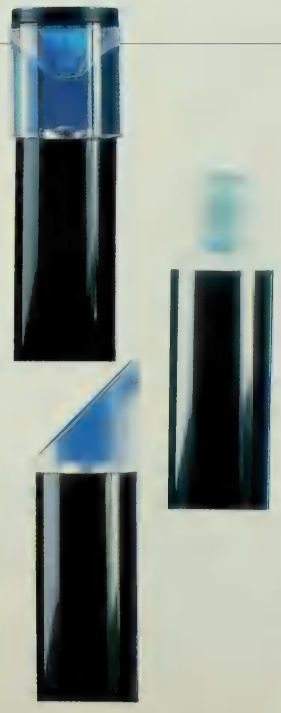
► T5-lamped optical system

Ledalite's Minuet HO T5 combines the high-output T5 lamp and an advanced new optical system with a design element that suits contemporary office interiors, reception areas, libraries, and other commercial applications. Minuet comes prewired and ready-to-install and offers three distributions (indirect, semidirect, and direct/indirect) that meet RP-1 standards for office lighting. 604/888-6811. Ledalite Architectural Products, Langley, British Columbia. **CIRCLE 218**



► Whatever the weather

The Stonco series of KnightWatch motion-sensor luminaires features a curved-lens design and longer life fixtures for energy-efficient security applications. The surface-mounted device uses advanced technology to provide performance from -40 to +120 degrees Fahrenheit, eliminating false triggering due to sudden weather or temperature changes. 908/964-7000. Stonco, Union, N.J. **CIRCLE 219**



◄ Decorative pathway lighting

Optiance by SuperVision, the fiber-optic lighting brand of Cooper Lighting, has introduced a family of nine different bollard-style fixtures of decorative pathway lighting (three shown). The lack of heat or electricity in fiber-optic fixtures makes them a safe choice in wet weather and around children and pets. Each fixture head in the series is made of solid, nonyellowing acrylic, while bodies are constructed of PVC plastic. Fixture-head choices include cylinder; stepped cylinder; slanted, tiered, and lantern shapes; and knurled, grooved, or inverted cylinders. 912/928-3843. Cooper Lighting, Americus, Ga. **CIRCLE 242**

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◄ Easier coordination

Canadian architect Gregory Henriquez, AIA, along with industrial designer Alex Feidman, developed the Orchestra family of light fixtures to help simplify the coordination and specification of lighting. While maintaining a consistent image, Orchestra offers distinctive shapes, sizes, and finishes which blend into every area of a building. Orchestra is listed to UL standards for wet locations. 888/650-5483. Rebelle Architectural Lighting, Maple Ridge, British Columbia. **CIRCLE 243**

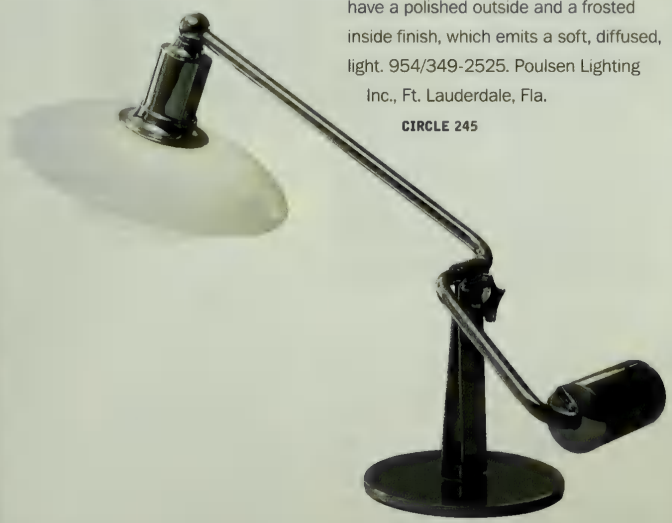
► Minimizing energy use

Minima MH fixtures are track-mounted accent lights and wallwashers for use with metal-halide PAR 30 and PAR 38 lamps (spot and flood). Edison Price developed the product family as part of a cost-sharing arrangement with New York State Energy Research and Development Authority to promote quality lighting fixtures that reduce energy. The fixtures use 39-watt, 70-watt, and 100-watt metal-halide lamps with a life up to 9,000 hours, resulting in less frequent relamping. 212/521-6955. Edison Price Lighting, New York City. **CIRCLE 244**



▼ Let me reintroduce myself

Louis Poulsen's series of PH classics has been expanded by a 2/1 shade size (2 refers to the upper shade, which is 20 centimeters), which was first launched in 1933. The faithfully reintroduced series includes a table lamp, a pendant, and a wall lamp. The light is constructed of chromated brass, and the shades consist of three layers of hand-blown glass that have a polished outside and a frosted inside finish, which emits a soft, diffused, light. 954/349-2525. Poulsen Lighting Inc., Ft. Lauderdale, Fla. **CIRCLE 245**



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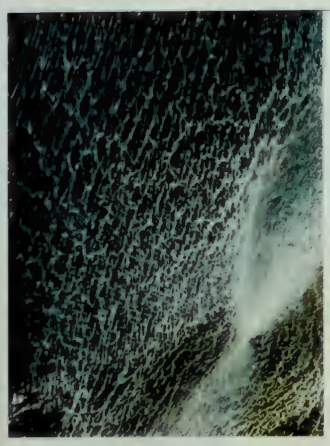
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New Products

We survived the 2000 countdown without violence, but architects should still make a resolution to design safer schools, embassies, and public buildings. There are a legion of security products that can help take away power from terrorists, but even the best system won't work if proper procedures aren't followed. *Rita F. Catinella*





LAMINATED GLASS TAKES A DANGEROUS WEAPON OUT OF THE TERRORIST'S ARSENAL

When a blast occurs, the ordinary window glass found in most buildings breaks into shards that pose a significant threat to people in the vicinity. Not only can the air blast pressure damage the building and injure the personnel within it, but that pressure can also destroy everyday office fixtures and turn them into deadly missiles. The blast wave effect causes the majority of damage to a building's interior after an explosion.

One way to help save lives in a bomb explosion or other violent attack is to use laminated glass. This glass is made when a polyvinyl butyral (PVB) sheet is bonded with intense heat and pressure between two panes of glass.

The security value of laminated glass was illustrated at the second Department of Defense Force Protection Equipment Demonstration at Quantico Marine Corps Base in Virginia last May. Three glass panels (supplied by Viracon), including ordinary panes of ⅛-inch annealed glass, ¼-inch laminated glass, and insulating laminated glass (two panes of ¼-inch laminated glass spaced ½ inch apart), were subjected to 50 pounds of TNT on each of the four days of the bomb blast demonstration (far left, bottom).





After the blast (far left, top), all three window glass constructions were fractured to some degree. The ordinary window glass specimen exploded into numerous glass shards. The shards from the single-laminated glass adhered to the Saflex PVB interlayer, and the whole assembly remained in the opening. Similarly, no glass shards were observed on the ground in front of the laminated insulating window unit.

Solutia, which owns the trademarked Saflex plastic interlayer, has worked with the General Services Administration to clarify the value of using laminated glass in government buildings at home and abroad. Flying glass shards were the number one cause of injury and death at the two Embassy bombings in East Africa in August 1998, according to the Accountability Review Boards' assessment. After the bombings in Africa, Solutia turned its attention to the State Department and started helping with overseas facilities.

When the U.S. Embassy in Beijing was under siege last year, Solutia donated laminated glass to help the state department retrofit the embassy. The company sent approximately 130 pieces of glass laminated with Saflex to retrofit broken windows (left, before and after).

Due to the growing threat of terrorism, the U.S. has changed its glass or "glazing" policy to increase the physical security of its posts around the world. The new policy includes the continued use of high-strength laminated glass in all new construction–this can cost 20 to 30 percent more than using ordinary tempered glass–and the possible inclusion of laminates in any major building renovation projects.

"Glass is the shrapnel a bomber can use to perpetrate his deed," says Greg Wilson, director, federal affairs, Solutia Inc. "We want to take that shrapnel out of the terrorists' hands." 800/24-TOUGH. Saflex, St. Louis. **CIRCLE 220**



LOCKING UP STUDENTS TO SAVE THEIR LIVES

The disturbing increase in the frequency of deadly school shootings has created a need for architects to design more secure learning environments, even if it means allowing teachers to lock students inside classrooms and away from potential danger.

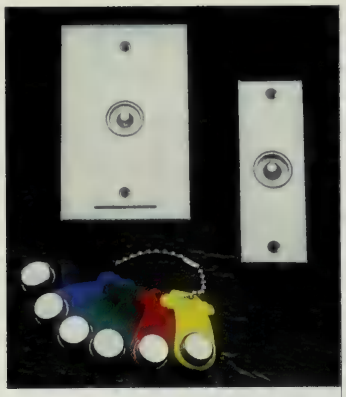
Part of the Classroom Security Series, Corbin Russwin's ML2072 is a grade-1 classroom-function lockset that incorporates deadbolt operation into a traditional classroom lock. To gain access to a locked classroom, a key in the outside cylinder will retract the latchbolt and deadbolt, allowing access to the classroom. When admitting students to class, retracting the latchbolt by either the inside or outside cylinder will unlock the outside lever. Once class begins, the teacher can again throw the deadbolt from inside to secure the door.

For quick egress, operation of the inside lever retracts the latchbolt and deadbolt simultaneously, meeting life-safety requirements. 800/543-3658. Corbin Russwin, Monroe, N.C. **CIRCLE 221**



◂ Bullet-proof camera

The V100 bullet-resistant surveillance camera combines durability with high-performance video imaging. Ideal for the most extreme of situations, the V100's lens window of ½-inch Lexguard polycarbonate will withstand the impact of a bullet from a 9mm handgun and a 12-gauge shotgun. The enclosure is made from marine-grade aluminum and is fully weather sealed. 604/574-1526. Silent Witness Enterprises Ltd., Surrey, British Columbia. **CIRCLE 222**



▾ Toxic chemical protection

CW Sentry is a compact instrument that detects trace levels of chemical warfare agents. It is fully automatic and designed for fixed installations, such as subway systems, where 24-hour monitoring is required. It is compatible with standard fire-alarm systems. 407/884-3300. Microsensor Systems, Orlando.

CIRCLE 226



▲ Controlling access

The e.Primus access-control system is designed to operate hard-wired door hardware such as electric panic or fire-exit hardware, electric strikes, electromagnetic locks, and other electric locks. Using the new time functions, specific activation times can be assigned to user keys to allow entry only during certain periods. Expiration dates and times can also be assigned. 317/897-9944. Ingersoll-Rand Company, Von Duprin Division, Indianapolis.

CIRCLE 225

▾ ADA-compliant turnstile

To let companies install optical turnstiles without drilling holes or otherwise defacing the floor on which they stand, Omega introduces the MB2000 integrated pedestal/platform system. The optical turnstile works in concert with card-access control systems to detect unwanted or unauthorized visitors by making them pass through a security curtain in building lobbies. All wiring for power and communication travels through a custom raceway in the steel structure of the platform assembly. The system is ADA compliant and wheelchair friendly. 925/609-6339. Omega Corporation, Walnut Creek, Calif.

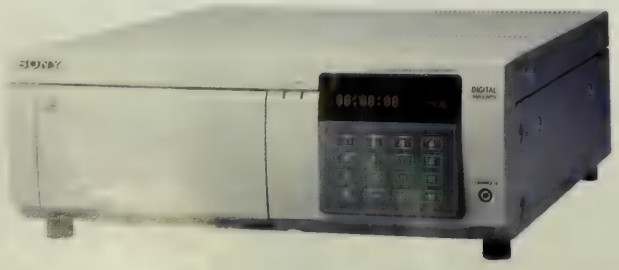
CIRCLE 223





▾ Surveillance recorder

Sony offers a digital hybrid recorder that features both a hard-disk drive and a digital-video tape drive. The hybrid nature of the recorder reduces the burden on the tape drive, resulting in reduced maintenance. It can connect to up to 16 cameras and be preprogrammed to record in multiple modes, including one with more than 500 lines of resolution. 800/686-SONY. Sony Electronics Inc., Park Ridge, N.J. **CIRCLE 224**



▲ Indoor/outdoor turnstile

The CATG2 series security turnstiles make sense when an unobtrusive security profile is necessary and when unmanned access to a secured area is a must. The turnstile is durable enough for both indoor and outdoor use. Each electrically controlled model contains an advanced programmable logic controller board (PLC) that rapidly processes information to catch and interrupt functions for a high-speed response. The system is also available with the added security of metal detection. 717/295-2900. Philips Communication & Security Systems, Inc., Lancaster, Pa.

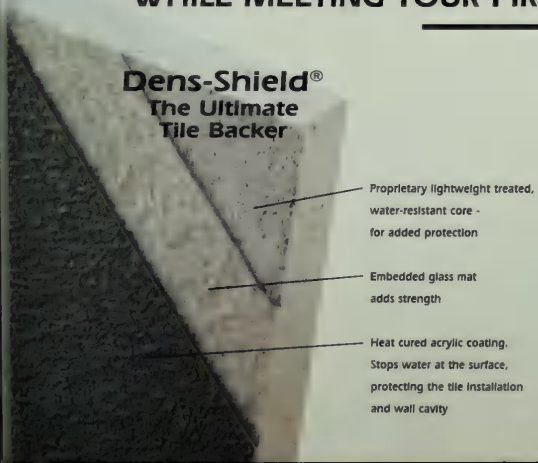
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The best, high performance tile backer board on the market is Dens-Shield® the Ultimate Tile Backer from Georgia-Pacific. It installs as easily as greenboard and outperforms heavy, hard to work with cement board. Plus, Dens-Shield features a built-in surface coating that stops water at the surface, protecting the wall cavity and tile installation. Our 5/8" Dens-Shield is the only backer board that's both fire-and water-resistant and meets ASTM C1178 criteria. And, Dens-Shield is backed by a 20-year limited warranty* For tile and non-tile, wet and high humidity installations specify Dens-Shield, the Ultimate Tile Backer.

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Products Briefs

▼ Coordinating carpet

Among other applications, the small-scale random grid pattern of Collins & Aikman's Wayfarer could be used for the lounges, retail areas, and corporate meeting rooms of a hotel. Wayfarer is made on an Accuweave Patterned Loop tufting machine, using 100 percent solution-dyed nylon. As with all Collins & Aikman products, it features the patented ER3 backing made from 100 percent reclaimed carpet. 706/259-9711. Collins & Aikman Floorcoverings Inc., Dalton, Ga. **CIRCLE 246**







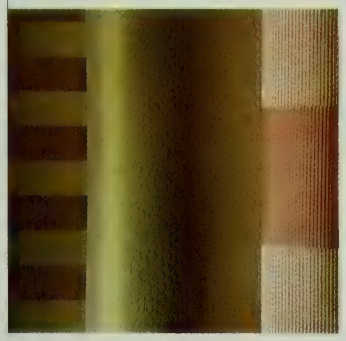
◄ Classy coverings

Scalamandré Contract includes a range of historic, classic, and contemporary themed upholstery for the contract and hospitality markets. Shown here are Inca, a nylon/polyester mix inspired by the designs for "cumbi," the finest fabrics reserved for the privileged individuals of the Inca, and Transistor Radio, a rayon/polyester mix. 718/361-8500. Scalamandré, Long Island City, N.Y. **CIRCLE 247**



▼ Good room service

DesignTex Hospitality, a new division of DesignTex, is aimed at the hotel, restaurant, and cruise-ship design field. The first collection, New Arrivals, offers residential-colored tapestries, damasks, chenilles, velvets, matelasses, pocketweaves, and repp weaves. Five more collections in the works for this year will focus on specific hospitality needs. 800/221-1540. DesignTex Hospitality, New York City. **CIRCLE 248**

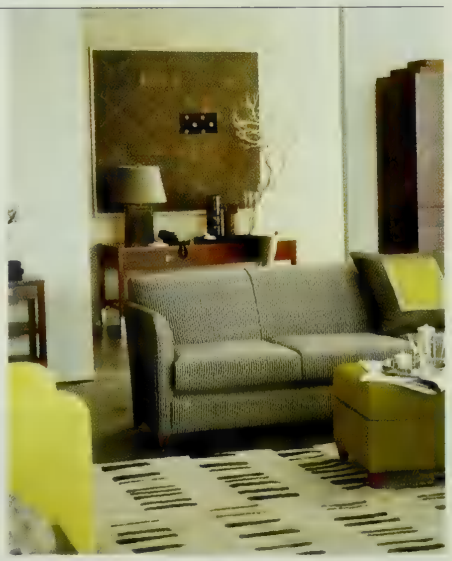


▲ Sunshade to go

The La Playa beach umbrella is lightweight, crafted of Jarrah wood, and has a two-part center pole designed for quick and easy on-site assembly. With its own carrying case—making it easy to transport from cabana to surfside—La Playa is ideal for hospitality applications. 800/919-9464. Santa Barbara Designs, Santa Barbara, Calif. **CIRCLE 250**

► Luxury boutique hotel collection

Donghia has introduced Donghia Studio, a new division to address the new breed of luxury hotels, clubs, and restaurants. Three new collections, Destination, Venture, and Travellers, offer well-tailored upholstery and maple or beech casegoods. The universal pieces in the collections currently consist of a media cabinet to house a television, music equipment, a refrigerator and bar, and a storage trunk that can be used as seating or at the foot of the bed. Each Donghia Studio piece is available in custom dimensions and finishes and with custom hardware. 212/925-2777. Donghia, New York City. **CIRCLE 249**





◄ One tough character

Armadillo, a new wall-covering line from England's Anaglypta, consists of four paintable, textured patterns, from checks and weaves to natural plaster and wood effects. If accidentally flattened, the patterns spring back to their original shape, making them ideal for high-traffic areas in offices, hotels, and restaurants. 800/422-2099. Crown Corporation, Denver. **CIRCLE 251**

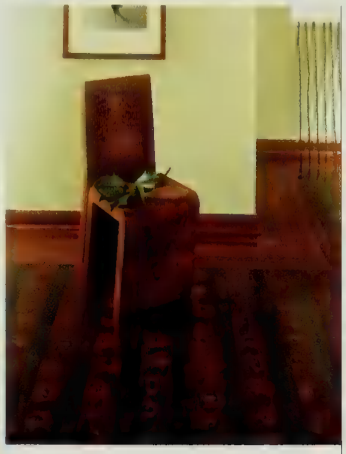
► Entertaining table

The Bistro collection provides a range of upholstered pull-up, stackable, and nonstackable seating and occasional tables. Bistro is durable enough for commercial lounges, cafes, hospitality suites, and corporate dining and training rooms. Durable solid-core Trespa tabletops provide a moisture-resistant, easy-to-clean surface ideal for hospitality applications. 888/289-4724. Grahl Industries Inc., Coldwater, Mich. **CIRCLE 252**



Product Briefs



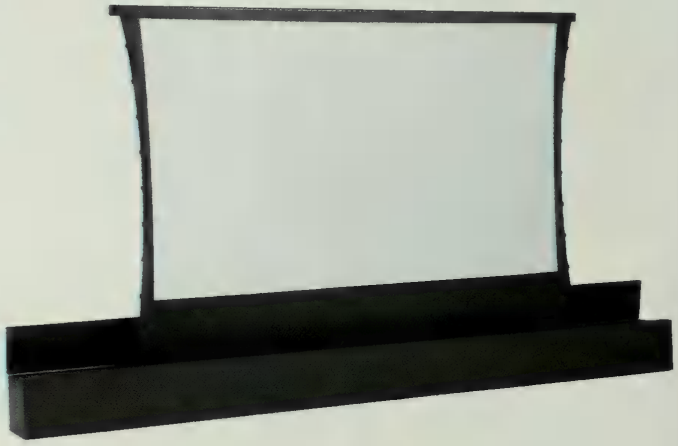


▲ Express it naturally

Pergo introduces its new vintage wood collection and stone designs within its Pergo Original line, as well as a new concept in laminate flooring, called Pergo Expression. Pergo Expression works alone or with Pergo Select to create borders or unique patterns. The new Pergo Expressions concept includes Aurora (above), a combination of leather and slate textures with a mix of strong colors; the Asian influenced Kanji (left), painted on textured paper with natural Walnut pigment; and Papyrus, an abstract birch-look, painted and textured on a Japanese paper. 800/33-PERGO. Perstorp Flooring Inc., Horsham, Pa. **CIRCLE 253**

▼ Ascending screen

Da-Lite Screen Company has expanded its electric-screen product line with the Ascender Electrol screen. Designed for a recessed, concealed floor-mount installation or for a decorative surround installation, the Ascendor Electrol provides the solution for environments where mounting a traditional ceiling or fixed wall screen is not practical. The screen features Da-Lite's patented in-the-roller motor mounting system. A motorized spring-assisted scissors mechanism raises the screen surface while ensuring a quiet, uniform performance. A trapdoor housing features a safety device that prevents the screen surface from rising if obstructed. 800/622-3737. Da-Lite Screen Company Inc., Warsaw, Ind. **CIRCLE 254**



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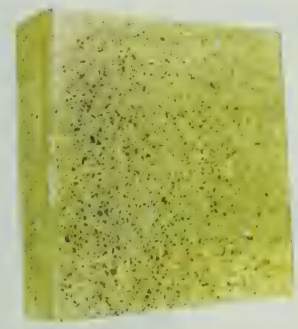
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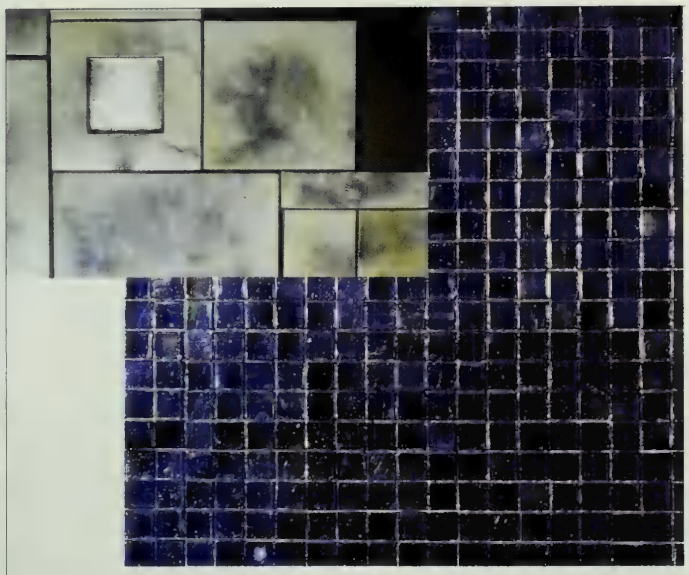
▲ Better the second time

Echo Environmental has established an agreement with Columbia University to market and sublicense technologies that use recyclable products for building and construction materials. A new material brings together the versatility of concrete and the aesthetic qualities of colored glass, as seen in this glass concrete tile. 212/363-8181. Echo Environmental Inc., New York City. **CIRCLE 255**

▼ Colorful door frames

Alumatone, the latest addition to Timely's inventory of colors, provides the look of clear anodized aluminum in a prefinished-steel door frame. Specifiers can now coordinate clear, anodized exterior aluminum windows with color-matching door frames from Timely. Timely steel frames will meet code requirements, including full 90-minute fire ratings. 818/896-3094. Timely, Pacoima, Calif. **CIRCLE 256**



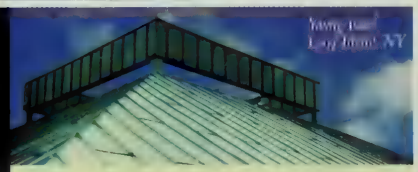


▲ Trendy tiles

Several ceramic tile trends emerged at the CERSAIE tile and bathroom exhibition, held in Bologna last October. The 106,000 visitors who made the trip saw tile in modular rectangles, cut-out geometrics, terrazzo, textile textures, metal and glass, surface relief, and various stone looks. Fire, from Maestri Maiolicari, is shown above in a steely blue with gray inserts framed in borders. Sicis introduced Iridium (shown below), a series of iridescent glass tiles in 41 luminous colors. 212/980-1500. Italian Trade Commission, Ceramic Tile Department, New York City. **CIRCLE 257**

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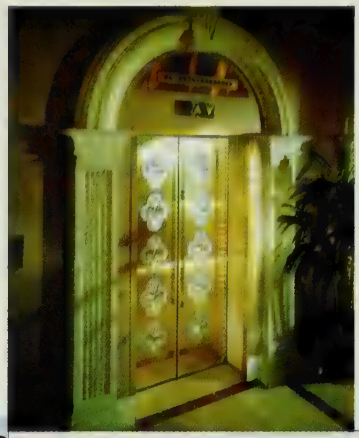
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Product Briefs

▼ Make a clear impression

Because of its ability to capture continuous-tone photographic art in glass, Cesar Color's GlassFresco process has been used by artist Mariko Mori to produce her internationally acclaimed work (*Burning Desire* shown). Through its patented process, Cesar Color can recreate virtually any type of image or artwork on a special plastic interlayer permanently bonded between two lights of safety glass. Other technologies from Cesar Color include ImpressionGlass, which adds three-dimensional texture to the surface to create customized embossed glass patterns, and ChromaFusion, which manipulates the translucence of glass in either solid or patterned applications. 800/275-7272. Cesar Color Inc., Phoenix. **CIRCLE 258**





◄ Decorating with metal

Decorated or textured sheet metal in stainless steel, brass, or aluminum can be used on hotel lobby walls and elevator door facings as an alternative to expensive veneers and granites. Installation is relatively easy: paint, wallpaper, and drywall do not need to be removed in most cases, and old elevator doors and frames do not need to be dismantled, because new metal facings and jambs are simply adhered over the old. 877/626-2596. SD+T Marketing, Miami. **CIRCLE 260**

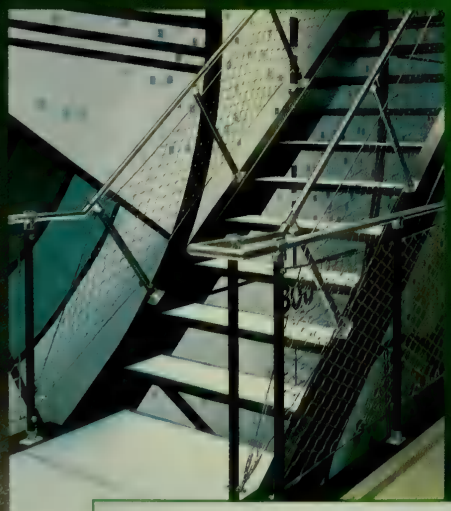
► Starting switches

A new line of Industrial AC motor-starting switches provide positive On/Off control for a variety of horsepower-rated motor loads and other general purpose loads. These devices provide switching control for a variety of inductive and resistive loads in industrial applications, including conveyor lines, air compressors, HVAC, and large fans. 800/323-8920. Leviton Manufacturing Co. Inc., Little Neck, N.Y. **CIRCLE 259**

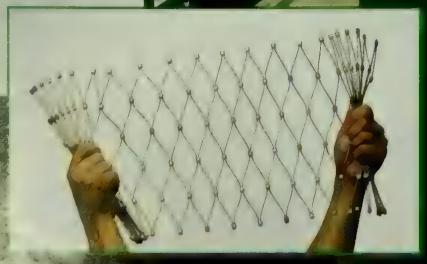




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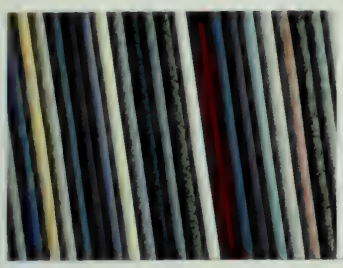
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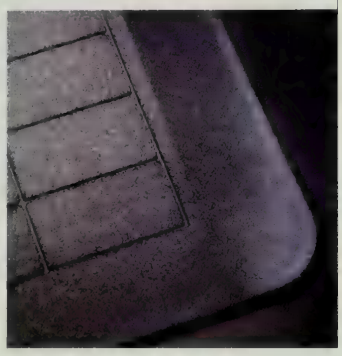


▼ Sound good, look good
Owens Corning's SelectSound acoustical system can be used to create the ideal listening environment for homeowners. SelectSound components include speaker wells, diffusers, a retaining system, and fabrics (shown). The fabric is made-to-order with sewn seams for a customized finish. A large selection of colors and styles are available. 800/GET-PINK. Owens Corning, Toledo. **CIRCLE 261**

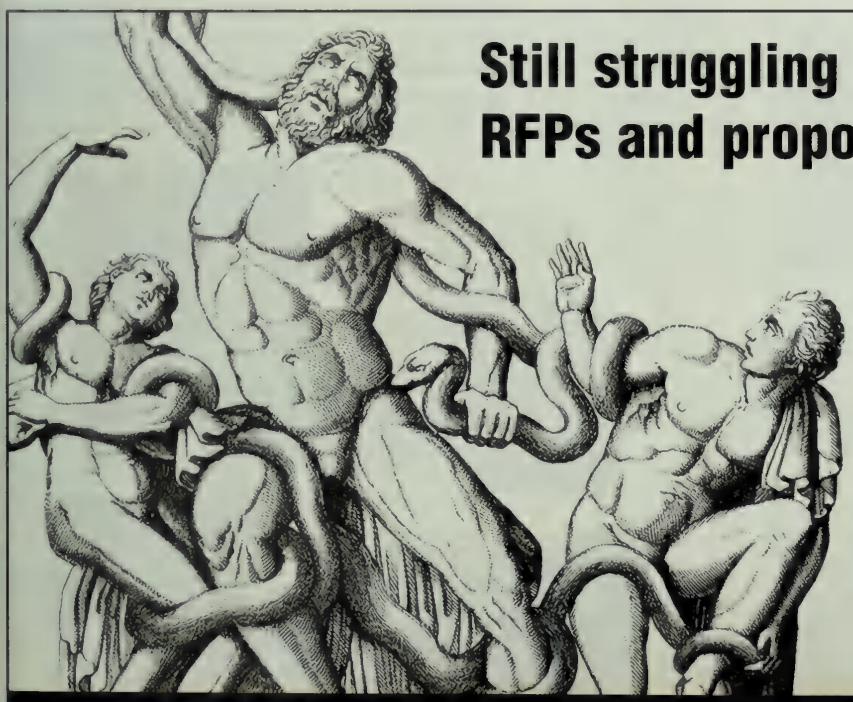


▲ Sculptural furnishings
Sculptor and artist Michael Gutzwiller designs custom metal furniture, including nightstands, beds, dressers, desks, and tables. The artist's work has been featured in a number of exhibitions and solo shows, and his commissions include an aluminum time capsule for the Western Reserve Historical Society in Cleveland and a metal globe stand for the Cleveland Main Library. Smaller pieces take 3 to 4 weeks to complete, larger ones take 4 to 5 weeks, and bedroom take 8 to 12 weeks from delivery of material. 970/407-8277. Gutzwiller Originals, Fort Collins, Colo. **CIRCLE 263**

► Recycled ramping system
Made of 100 percent recycled rubber, the EZ Edge modular ramping system can be applied with silicone adhesive to concrete, tile, marble, glass, wood (including painted surfaces), and natural and synthetic fibers. The modular ramping system features a slip-resistant, speckled black surface that alerts pedestrians of an immediate vertical rise. 800/497-2003. The Access Store, Chico, Calif. **CIRCLE 262**



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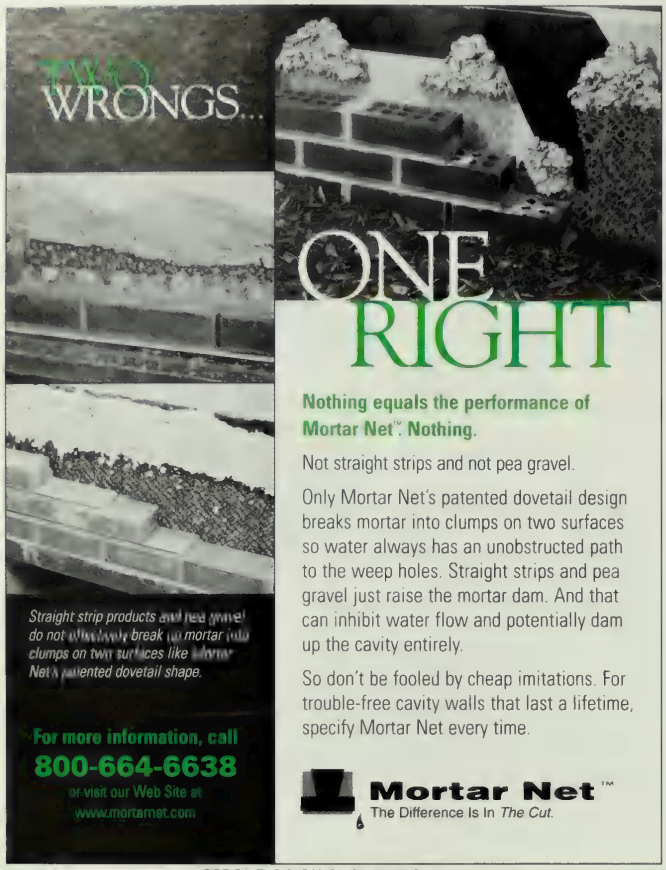
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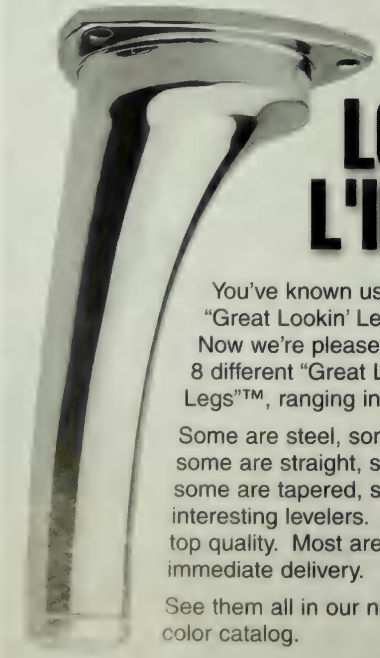
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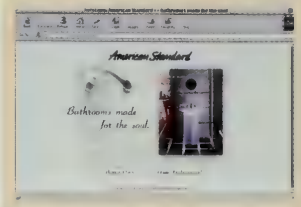
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Product Literature

NEW SITES FOR CYBERSURFING

American Standard has enhanced its site **www.americanstandard-us.com**



Commercial door-opening product library **www.essexopenings.com**

Playful home furnishings and accessories **www.girthdesign.com**

Crestline has redesigned its site **www.crestlinewindows.com**

Window/door installation and accessory details added to site **www.traco.com**

Desk-system details

A new 20-page brochure illustrates the full line of Brisk modular desk components. 800/444-8812. Geiger Brickel, Atlanta. **CIRCLE 228**

Commercial flooring catalogue

Art in Structure is a 28-page catalogue published by Tarkett to showcase its ColorWorks system of commercial sheet flooring and floor tile. 800/225-6500. Tarkett Inc., Whitehall, Pa. **CIRCLE 229**

Ceramic tile from A to Z

Assopiastrelle, the Association of Italian Ceramic Tile Manufacturers, has produced the pocket-sized *Italian Ceramic Tile Dictionary* as a guide to the most common terms used in the ceramic tile trade. 212/980-1500. Italian Trade Commission, Ceramic Tile Department, New York City. **CIRCLE 230**

Enhanced CD-ROM

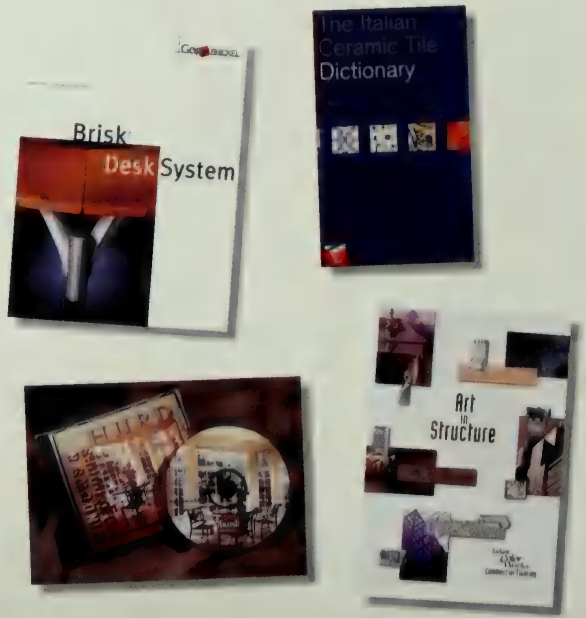
A new architectural CD-ROM contains architectural specifications for Hurd aluminum-clad and primed-wood windows and patio doors. 800/2BE-HURD. Hurd Millwork Company Inc., Medford, Wis. **CIRCLE 231**

Metal product catalogue

Custom Panel Industries has published a new general catalogue describing the company's comprehensive line of metal roofing and wall systems and other formed metal products for commercial, industrial, institutional, and agricultural applications. 909/829-8618. Custom Panel Industries LLC, Fontana, Calif. **CIRCLE 232**

EIFS on CD-ROM

Parex has launched a CD-ROM designed to put the company's entire EIFS product line on the desktop for easy reference. 770/482-7872. Parex Inc., Redan, Ga. **CIRCLE 233**



For more information, circle item numbers on Reader Service Card or go to www.architecturalrecord.com Advertiser & Product Info

Product Literature

Technical manual for panels
Centria's Formawall Dimension Series Design Manual contains technical data sheets and horizontal, vertical, and profile application details. 412/299-8000. Centria Architectural Systems, Moon Township, Pa. **CIRCLE 234**

Bath solutions
Duschqueen's new literature features its all new line of solid brass-framed shower enclosures along with its frameless glass enclosures. 800/348-8080. Duschqueen Inc., Wyckoff, N.J. **CIRCLE 235**

Hurricane shingle brochure
A new brochure highlights the features and colors of the Stormfighter AR shingle for hurricane regions. 800/641-4691. Tamko Roofing Products Inc., Joplin, Mo. **CIRCLE 236**

Window solutions brochure
A new Wausau Window and Wall Systems brochure includes case studies and information on aluminum windows and curtain-wall systems suitable for both new construction and renovations. 877/678-2983. Wausau Window and Wall Systems, Wausau, Wis. **CIRCLE 237**

Awning and umbrella fabrics
Glen Raven Custom Fabrics brochure highlights new additions to its Sunbrella line of awning and umbrella fabrics for the 2000-01 season. 336/227-6211. Glen Raven Custom Fabrics, Glen Raven, N.C. **CIRCLE 238**

Carpet selection CD
Lees has updated its Thought Patterns CD-ROM and catalogue to let designers see patterns and colorways, which can also be printed for colorboards and presentations. 336/379-2000. Lees, Greensboro, N.C. **CIRCLE 239**

Lighting basics brochure
Holophane's 24-page brochure provides information on lighting basics, light sources/lamp characteristics, photometry, calculations, and lighting quality. 740/349-4130. Holophane Corporation, Newark, Ohio. **CIRCLE 240**

Decorative glass for doors
ODL offers a comprehensive 44-page 2,000 product catalogue featuring dozens of glass options for doorlights, sidelights, and transoms. ODL offers seven series of products for the residential market in the new catalogue. 800/253-3900. ODL, Zeeland, Mich. **CIRCLE 241**





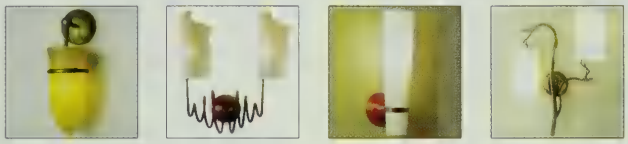




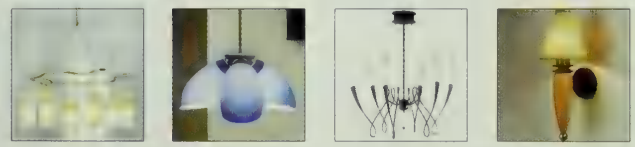
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BusinessWeek

ARCHITECTURAL RECORD

THE AMERICAN INSTITUTE OF ARCHITECTS

Dates & Events

Calendar

Edge City: Work by Steven Holl
San Francisco
Through February 20
On display are the architect's models, photo collages, and drawings visualizing the imposition of form on urban sprawl. San Francisco Museum of Modern Art. 415/357-4000.

Cedric Price: Mean Time
Montreal
Through February 27
On exhibition are the often humorous unbuilt projects of English architect Cedric Price, who explores how architecture can adapt itself to new uses over time. Canadian Centre for Architecture. 514/939-7000.

Design from the Heartland
Chicago
Through February 27
An exhibition featuring the work of three pioneering industrial designers: Henry Glass (American Way furniture), John Polivka (equipment and graphics for Control Data Systems), and Richard Ten Eyck (Cessna aircraft and Vornado fans). Art Institute of Chicago. 312/443-3600.

E.W. Godwin: Aesthetic Movement Architect and Designer
New York City
Through February 27
The first U.S. exhibition devoted to the work of this 19th-century British polymath; Godwin was an accomplished architect, designer, interior decorator, antiquary, theatrical producer, and critic. Bard Graduate Center for Studies in the Decorative Arts. 212/501-3072.

At the End of the Century: 100 Years of Architecture
Chicago
Through March 12
A traveling multimedia exhibition highlighting major trends in 20th-century architecture. Museum of Contemporary Art. 312/280-2660.

The Pritzker Architecture Prize 1979–1999
Pittsburgh
Through February 27
An exhibition highlighting a single, signature project for each of the 22 Pritzker laureates. Carnegie Museum of Art. 412/622-5551.

ModernStarts: Places
New York City
Through March 14
An exhibition demonstrating how particular spaces, real and imagined, urban and rural, were conceived and represented by artists between 1880 and 1920. Museum of Modern Art. 212/708-9750.

The Architecture and History of the Garment District
New York City
Through March 15
An exhibit on the loft buildings of this industrial neighborhood in the heart of Manhattan, presented in conjunction with a lecture series and walking tours. The Urban Center. 212/935-3960.

A Century of Design, Part I: 1900-1925
New York City
Through March 26
The first in a series of exhibitions surveying 20th-century design of furniture, metalwork, glass, ceramics, textiles, jewelry, and drawings. The Metropolitan Museum of Art. 212/535-7710.

Triumphs of the Baroque
Montreal
Through April 9
An exhibition of European architecture from 1600-1750, highlighted by 30 large-scale architectural models. The Montreal Museum of Fine Arts. 514/285-1600.

En chantier: The Collections of the CCA, 1989-1999
Montreal
Through April 30
Celebrating its 10th anniversary, the CCA displays the best of its collection of architectural drawings, renderings, models, and photographs. Canadian Centre for Architecture. 514/939-7000.

See the U.S.A.: Automobile Travel and the American Landscape
Washington, D.C.
Through May 7
This exhibition celebrates roadside architecture and the culture of the automobile, featuring photographs by John Margolies, author of 10 books on the subject. National Building Museum. 202/272-2448.

The Corner Store
Washington, D.C.
Through March 6
An exhibit tracing the history and cultural impact of a vanishing American typology: the local grocery. National Building Museum. 202/272-2448.

Ralph Rapson: Sixty Years of Modernism
Washington, D.C.
Through May 28
The first comprehensive exhibition of the work of this prominent Midwestern modernist, whose achievements encompass the realms of architecture, furniture design, and urban planning. The Octagon. 202/638-3221.

Material Evidence: Chicago Architecture at 2000
Chicago
Through March 5
Guest-curated by Cynthia



CIRCLE 87 ON INQUIRY CARD

Dates & Events

Davidson, this exhibition investigates how the use of materials drives contemporary Chicago architecture. Featured architects include Ron Krueck, Obi Mwazota, Carol Ross Barney, and Joe Valerio. Also on display are commissioned installations by Sarah Dunn/Martin Felson, Studio Gang/O'Donnell, Doug Garofalo, and Helmut Jahn. Museum of Contemporary Art. 312/280-2660.

AGC Super Conference
Dallas
February 9–11
Associated General Contractors' annual conference covering matters related to construction project delivery. Westin Galleria. Call 703/548-3118 for information, or visit www.agc.org.

Security in the Civic Realm
New York City
February 12
The New York chapter of the AIA is sponsoring this conference, exploring how public institutions should be designed for security. To register for the conference, call Michelle Livingston at 212/683-0023 x17. Foley Square Courthouse.

Water Sensitive Ecological Planning and Design
Cambridge, Mass.
February 25–26
An international symposium that explores promising procedures, options, and limitations in water management. Part of Harvard's lecture and exhibition series, "100 Years of Landscape Architecture." Harvard Design School. 617/496-0436.

Frank Lloyd Wright: Windows of the Darwin D. Martin House
Washington, D.C.
February 18–August 20
An exhibition of glass windows, [illegible] Wright created for the house. National Building Museum. 202/272-2448.

Restoration & Renovation
Boston
February 27–29
A tradeshow and conference dedicated to architectural rehabilitation, cultural landscape preservation, collections care, and historically inspired new construction. Hynes Convention Center. 800/982-6247.

Harvard Asia Design Conference
Cambridge, Mass.
March 9–11
This conference will explore Modernism's inroads into Asia. Call 617/621-9963 or visit gsd.harvard.edu/asiagsd for more information.

Urban Wilderness—Chaos Transformed: Photographs by Irving Greines
Washington, D.C.
Through March 21
This California photographer takes on the streets of Manhattan, focusing on the ephemeral nature of the urban landscape. AIA Headquarters Gallery. 202/638-3221.

Competitions

Young Architects Forum: Second Nature
Submission deadline: February 18
Sponsored by the Architectural League of New York, this ideas competition is open to architects who have graduated from architecture programs within the last 10 years. Winners receive a cash prize and are invited to exhibit their work and present lectures in May and June. For an entry form, call 212/753-1722.

New York State Architecture, Planning, and Design Grants
Application deadline: March 1
Architects, planners, designers, and scholars who are residents of New York State can apply for $10,000 grants for projects that contribute to the public's understanding of the designed environment. Call 212/387-7157 or E-mail mwinder@nysca.org.

Developments for Amphibious Living
Application deadline: March 1; submission deadline: April 1
This ideas competition, sponsored by the soggy Dutch province of South Holland, is for designs that best show how living and working can take place in a watery environment. Entries will be made over the Internet, and all competition information can be found at www.amfibischwonen.nl.

Plan: Section
Submission deadline: March 2
Arcade magazine is sponsoring an easy-to-enter competition: submit one plan, one section, and one sentence about a completed, in-process, or speculative building. E-mail arcade00@msn.com for a full prospectus, which will be available January 12.

Business Week/Architectural Record Awards
Registration deadline: March 16; submission deadline: April 18
This annual awards program recognizes distinguished collaboration between clients and architects to achieve strategic business goals. Entrants submit a mission statement and business plan describing how the project fits into an organization's overall goals. Also submitted are descriptions of both the process of design and how the project resulted in business success, including measurements of results where available. Eligible are public- and private-sector projects of any budget, both new construction and renovations, completed anywhere in the world since January 1, 1997. Winners will be featured in fall issues of Business Week and record. To register, call 888/242-4240, or visit www.architecturalrecord.com.

DuPont Benedictus Awards
Submission deadlines: March 6 (professional architects); March 24 (students)
This international awards program, open to professional architects and students from any country, recognizes the use of laminated glass in commercial and residential projects. Winning architects receive a sculpture by glass artist Hans Fräbel; winning students receive cash awards for their programs. Entry forms are available from the AIA and the UIA and can be downloaded from www.e-architect.com/pia. For inquiries, call E. Jackson Jr. at the AIA, 202/626-7446, or Joanna Hanes-Lahr at the DuPont Benedictus Awards, 202/393-5247.

AIA Young Architects Forum/Germantown, Pa., Habitat Competition
Submission deadline: April 1
This design competition coincides with the 2000 AIA convention in Philadelphia. "Building Livable Communities" asks entrants to design an urban rowhouse prototype for Germantown, Pa. The competition is open to young architects (licensed 10 years or fewer), architectural interns, and students. E-mail mottc@aiamail.aia.org.

Martin Luther King, Jr. National Memorial
Registration deadline: April 1; submission deadline: May 1
Entrants in this international competition to design the King memorial for its site on Washington's Tidal Basin, are asked to embody "the man, the movement, and the message." Anyone can enter; interdisciplinary teams are encouraged. To register, send a check for $75 accompanied by a letter listing the entrant's address, phone number, and E-mail address. Checks should be made out to "M.L. King Jr. National Memorial" and sent to Dr. E. Jackson Jr., Design Committee, Martin Luther King Memorial Project Foundation, Dept. 211, Washington, D.C., 20055. Visit cluser1.bellsouth online.com/mlk to know more. ■

Please submit information for the calendar to jessica_dheere@mcgraw-hill.com at least six weeks before the magazine's publication date (February 15 for the April issue).

Sixty second guide to Belden Brick:

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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Questions appear on page 134. To receive CES credits, fill in the education reporting form below or on our Web site (www.architecturalrecord.com).

1. The goal of each seismic device is to dissipate or absorb the force of the earthquake, decreasing the demand on the building structure and helping to keep it intact. What type of device is selected depends on the location of the project, design parameters, the owner's requirements, building codes, and costs. Basic code requirements say that a building must be intact enough to allow safe egress immediately following a quake. Among the systems represented, base isolators, paired with braces, shear walls, or dampers, are generally the most effective for preventing seismic damage. Shear walls alone, however, are most cost effective.

2. Shear walls may be added to an existing building or designed into a new one to add strength and stiffness. Normally made of reinforced concrete, they may be constructed from other materials as well. Shear walls are usually heaviest at the base, where seismic forces are strongest, and become thinner as they go up through the building. They are also one of the most cost-effective devices, though their thickness—often 12 to 18 inches or more—limits building design and eats up square footage.

3. Braced framing stretches diagonally from the beam and column joints to create a triangulated vertical frame. Bracing limits building design because it requires consistent floor design so the braces can go through from top to bottom without interrupting the usage of space. If each floor is programmatically different, positioning the bracing is an architectural challenge. Bracing may be shaped in a variety of ways—x, v, and chevron shapes are among the most common.

4. There are four varieties of dampers: visco-elastic, friction, metallic, and viscous. Dampers soak up the energy of earthquake-induced motion, thereby limiting structural damage. They are also effective at stopping the swinging motion a building is prone to with earthquake vibrations. Directing the earthquake energy to the dampers stabilizes the structure; the piston component, common to all types of dampers, pumps back and forth, releasing the energy—often in the form of friction or heat.

5. Base isolators come in three varieties, high-damping rubber, lead-core rubber, and friction pendulum. All three have basically the same effect, allowing the building to move independently of the shifting ground. They perform differently, however. Rubber or elastomeric isolators are available in varying degrees of softness, which allow different levels of movement. These allow the building to move, but pull it back into place. Lead-core inserts in a rubber isolator absorb some of the seismic energy and force the isolator to snap back into place more quickly, bringing the building back to level. Friction pendulums consist of sliders that slip around on a concave, nonstick steel plate. They rely on the weight of the structure to recenter the building after an event. ■

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☐ "Seismic Systems that Stand Up to Nature" [page 127]

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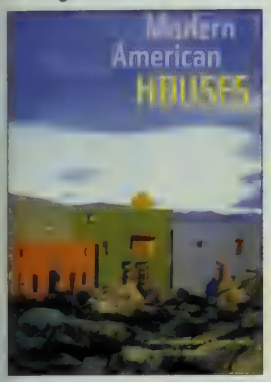
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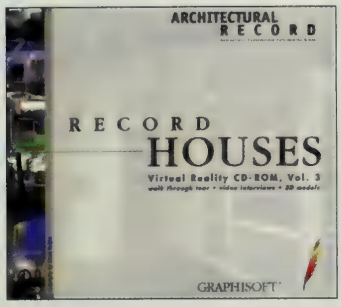
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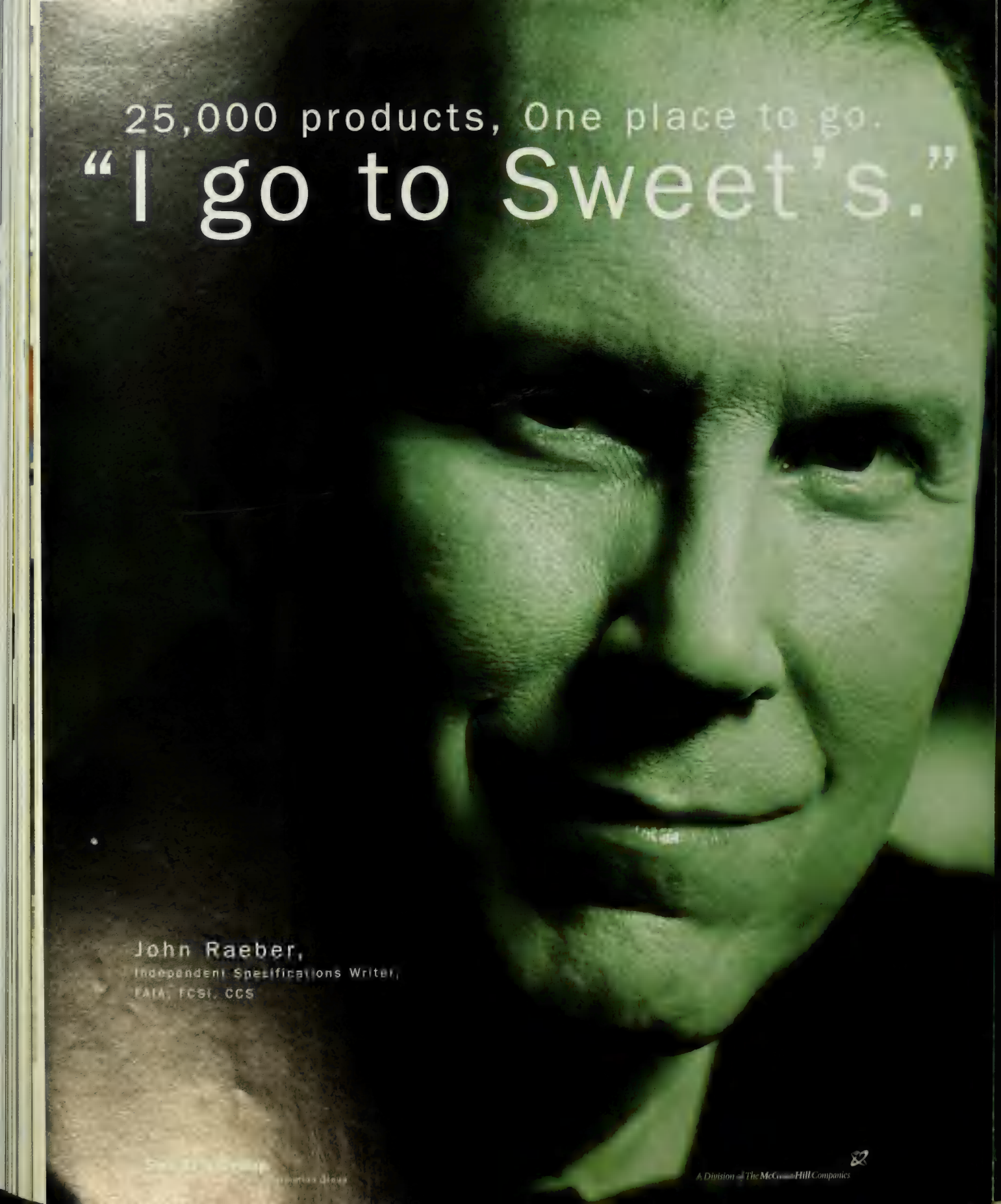
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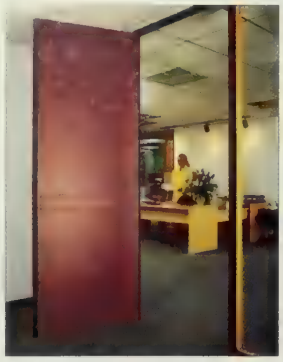
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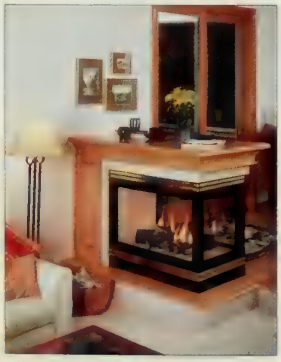


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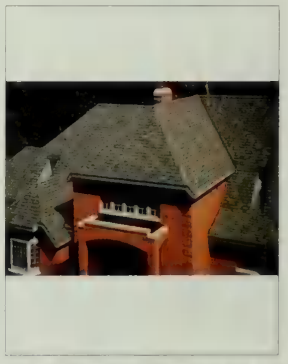


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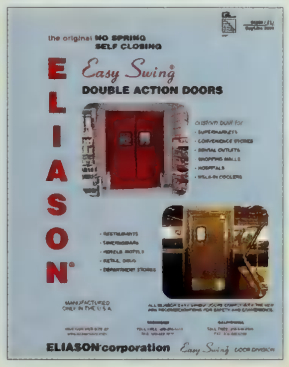


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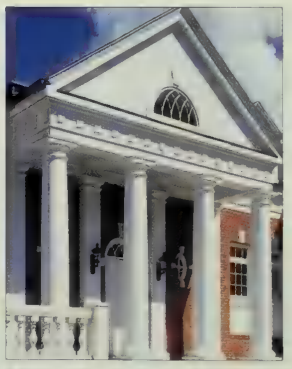


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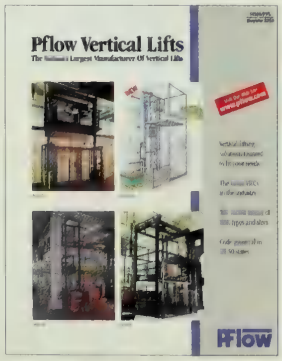


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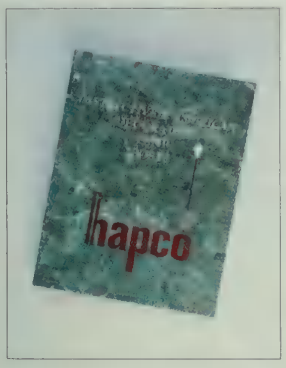


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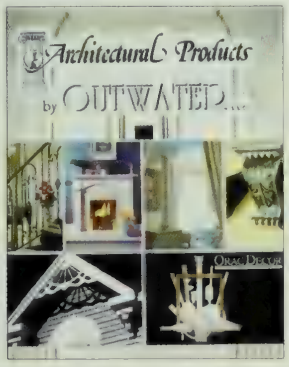


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LAFARGE GYPSUM



Artist Rick Lowe preserves humanity in Houston

Interviewed by Jessica Dheere

In 1993, artist Rick Lowe founded Project Row Houses to rehabilitate 22 shotgun houses in Houston's rundown, mostly African American Third Ward. Somewhat counterintuitively, he established art galleries first, for which artists would design temporary installations relating to the neighborhood's past and present. Then, he created homes. In January he received the American Architectural Foundation's Keystone Award for using architecture to "elevate and enrich the human experience."

Q: *You have a special affinity for buildings?* I don't just love buildings. I love the history and what they do for the community.

We try to link the histories [of the shotgun houses] of a general area or neighborhood, to weave existing architecture into current lifestyle and to create a dialogue between the artists, the residents, and the buildings.

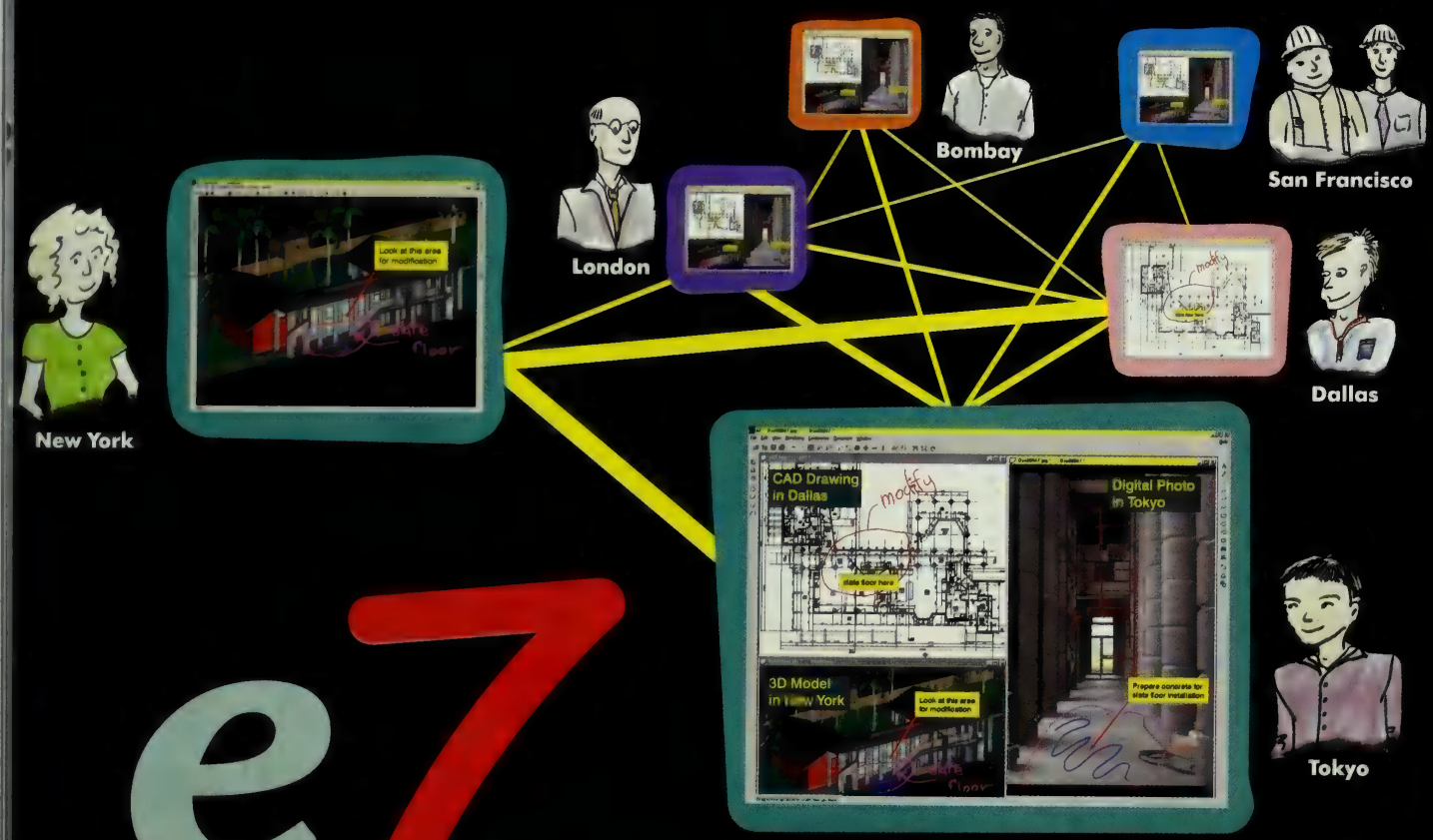
Why did you create the art galleries before renovating the houses? We thought the art would create the dialogue that would present the opportunity to develop the rest of the project. It had to be about more than a housing development, it had to be about cultural dialogue.

What kinds of installations have been done? We focus mostly on African American artists, but one of the best projects we've had was by a middle-aged white man. His work was about archiving and preserving histories. He gave out about 100 disposable cameras to Third Ward residents to let them document the neighborhood the way they saw it. He got about 75 back, developed the film, and put the photos in canning jars. People came out in droves to see themselves as a part of this exhibit, and they learned that their lives were worthy of public attention and acknowledgment.

Where do you see Project Row Houses in 25 years? By 1997, 85 to 90 percent of commercial activity left [the Third Ward] to get away from the guns and the drugs, basically causing "black flight." Going into the future, we're going to have to regain commercial activity along with the housing. As those resources—grocery stores, laundromats, drugstores—come, they're going to bring people from different parts of the city. It's already a strong neighborhood in terms of cultural identity; a good middle class will help stabilize it. Twenty to 30 years down the line, this will be a wonderfully mixed neighborhood, not just a typical one-group-moves-in-and-the-other-group-moves-out kind of place. ■

Photograph by Janice Rubin

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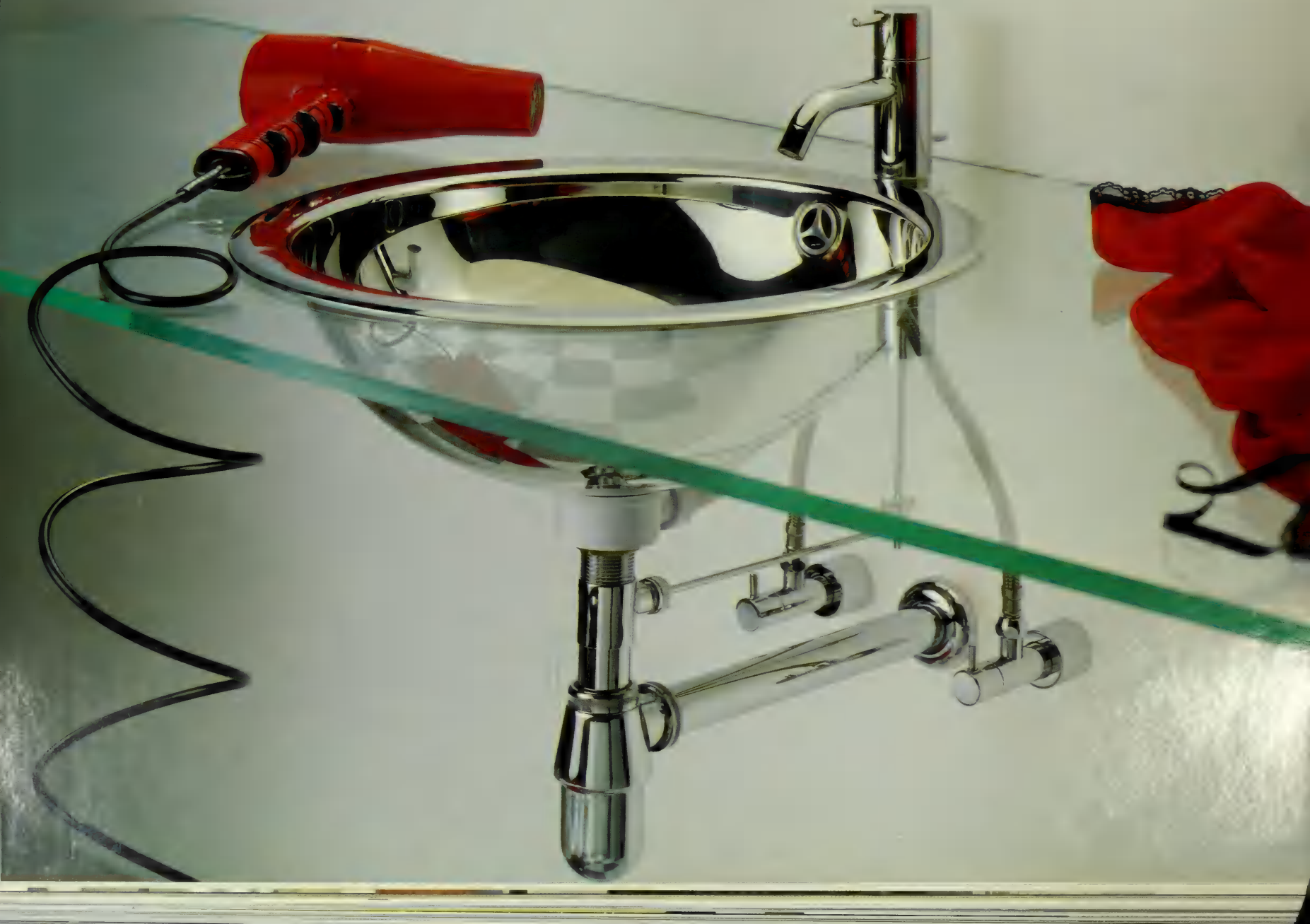
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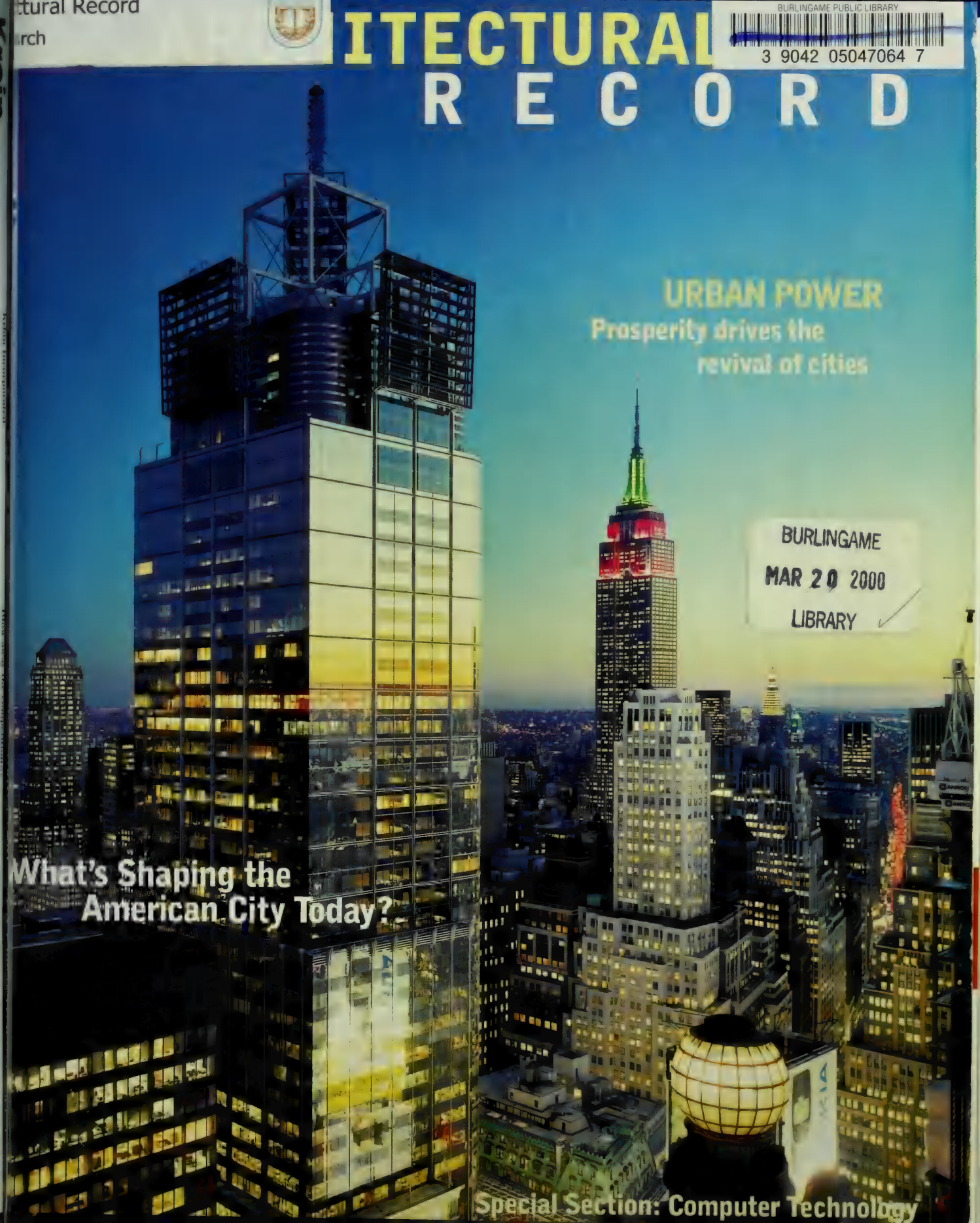
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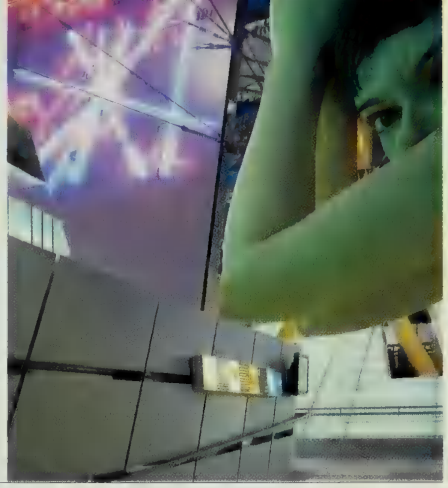
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Above: *Mind Zone at the Millennium Dome in London, by Zaha Hadid Ltd.*

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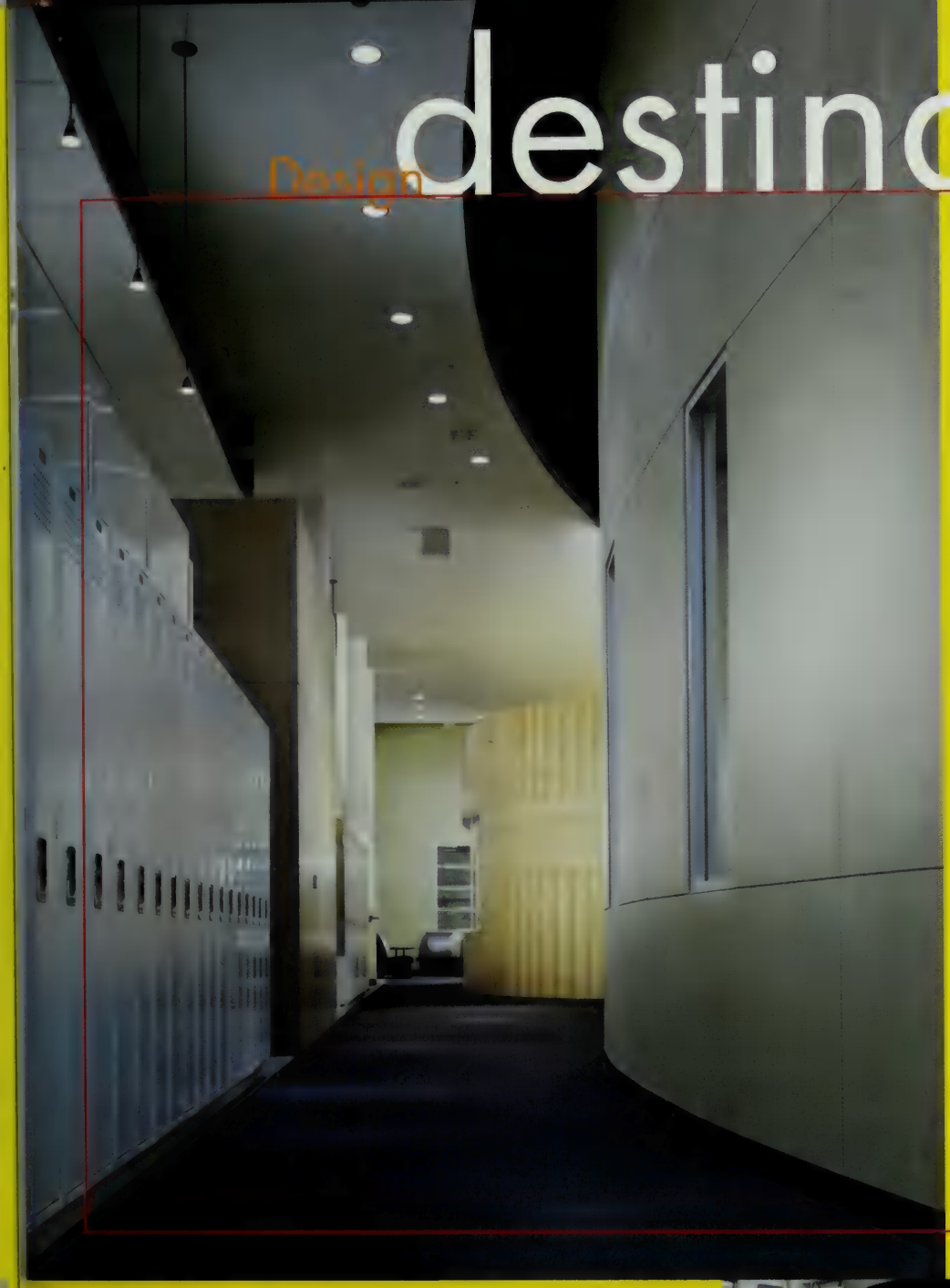
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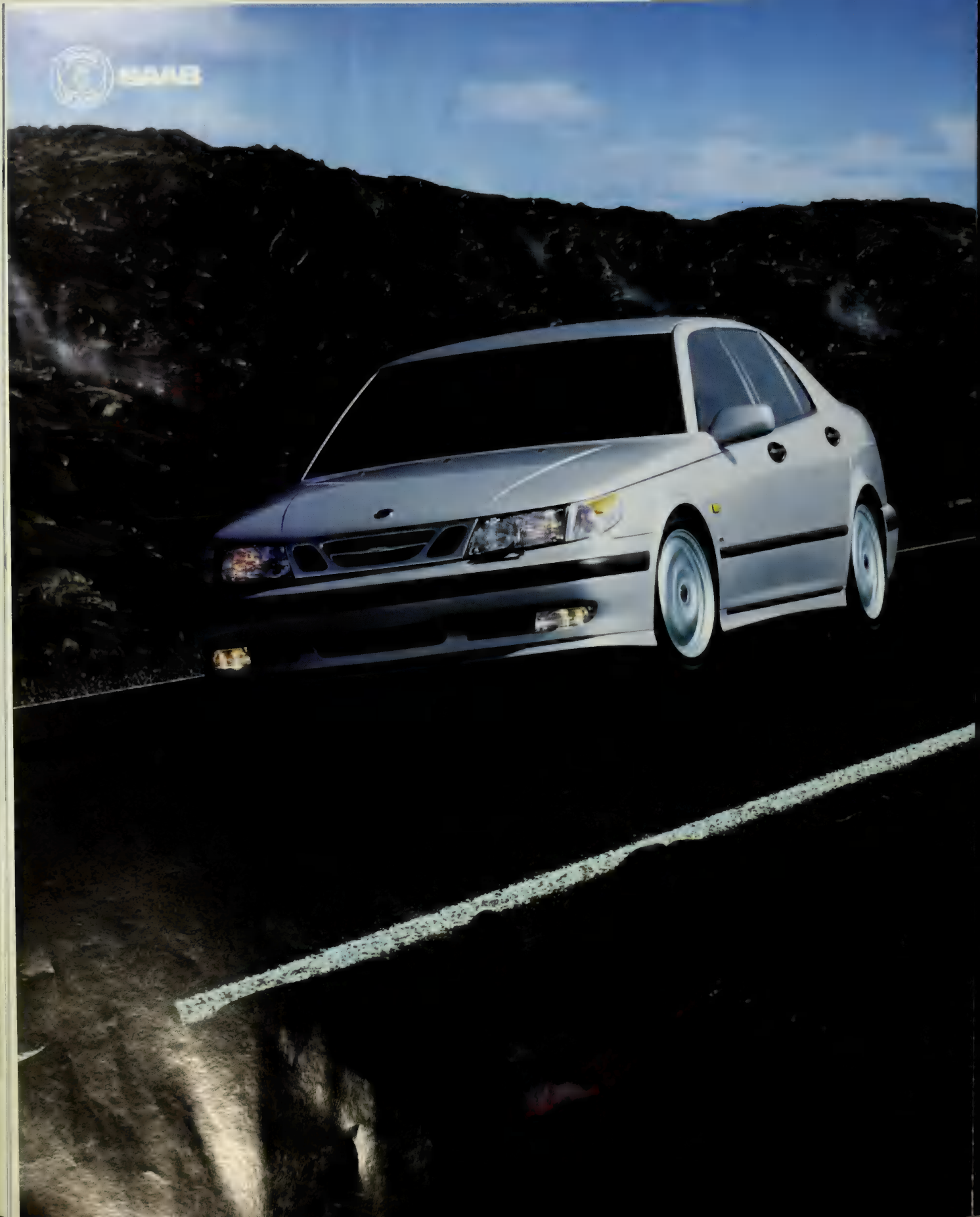


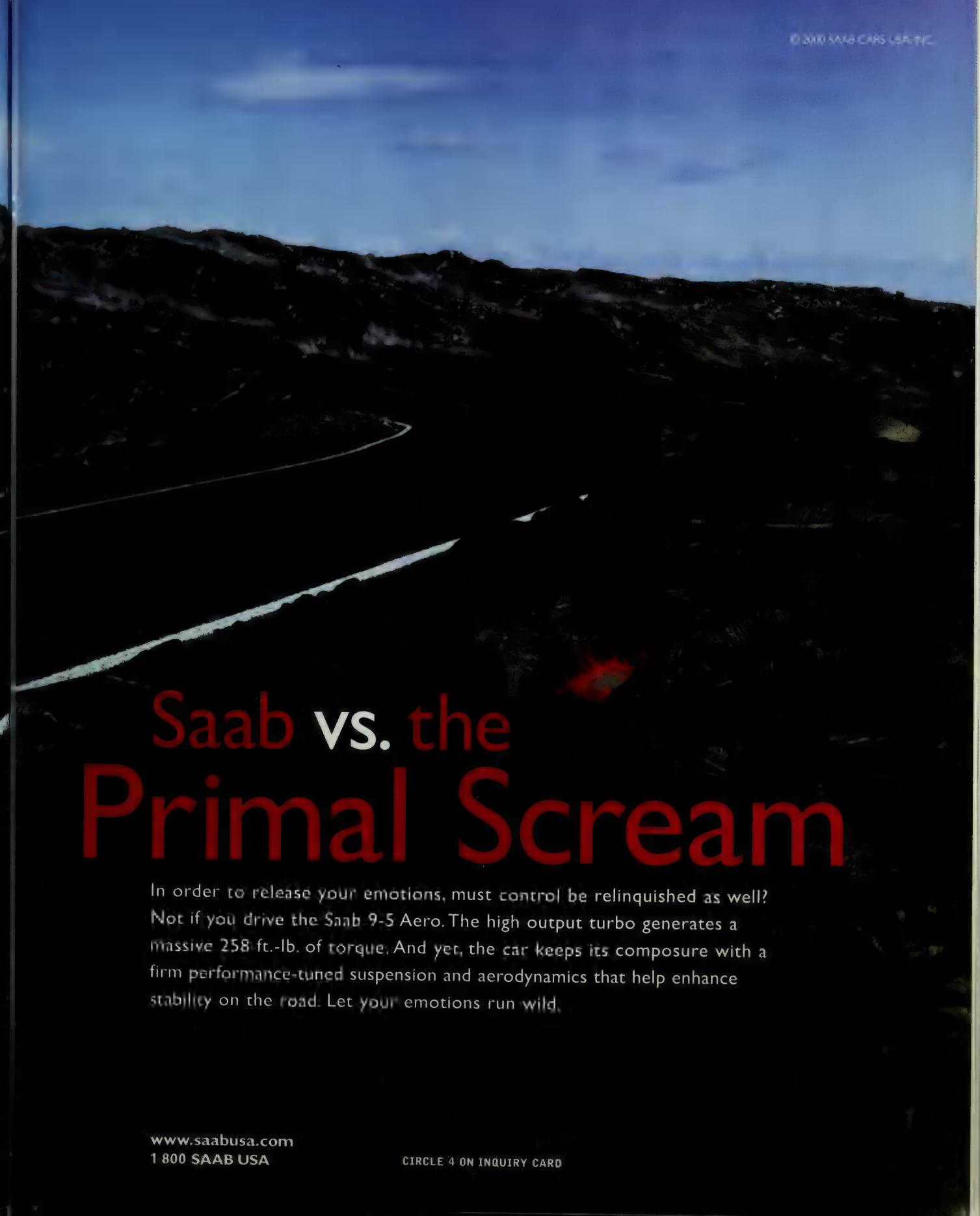
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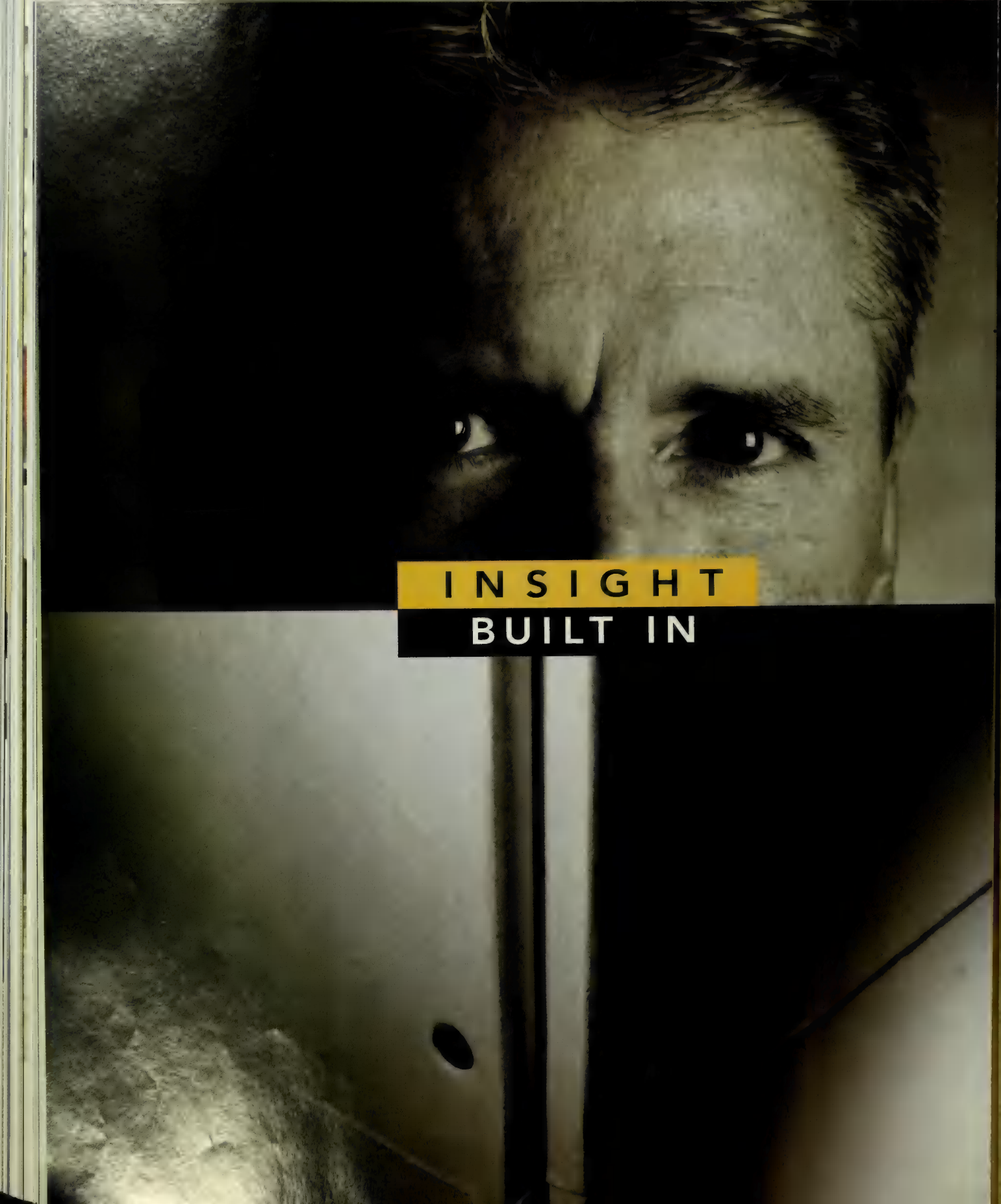
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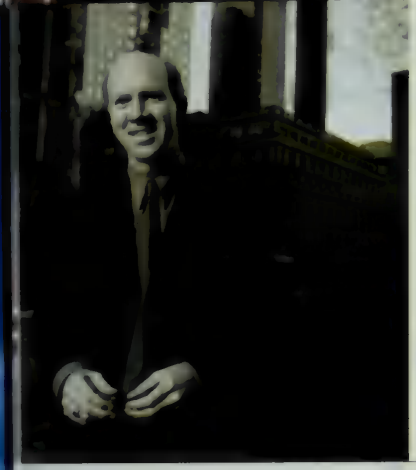
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Toward a new urban architecture

Editorial

By Robert A. Ivy, FAIA

Look at this month's cover, which proves that the city still has the power to fire the imagination. In documenting Fox and Fowle's new high-rise building, Four Times Square, Jeff Goldberg captured an urban dreamworld in a single image of New York City. It's all there, from the spruced-up globe of the Paramount building to the red blur of taxicabs trailing down the avenues—an urban vastness reflected in the evening light, a meta-rational universe that staggers the imagination. Although Goldberg's shot is poetic, even romantic, it captures the unexpected: despite our prognostications, the city lives.

Thirty years ago, however, American cities seemed to be the frayed repositories of old-fashioned ambition and optimism. Like the protagonist of Theodore Dreiser's novel, An American Tragedy, *the metropolis, once a beacon of capitalistic hope, was sliding toward self-destruction. For a generation, we focused on the abandonment of places like downtown Detroit and Memphis, impotent to stop the suburbs from gobbling up people and energy. And despite good times, a multitude of unresolved issues confounded us.*

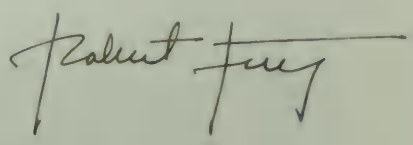
Sprawl continues its insidious dance today, yet certain cities are awash in newfound prosperity and reveling in density. While all cities are fraught with problems, some are reclaiming their waterfronts like Pittsburgh or Boston or San Francisco; Chicago is transforming warehouses into housing and offices for new media providers. Has New York, international Gotham, ever been more vibrant? At the same time that every other computer wizard is buying a Range Rover and moving to Silicon Valley, the T-1 lines are converging into a thickly woven communication nexus of hip cafes and investment banking houses plugged into the city's latest high-rises.

What continues to draw a new generation back into the urban matrix? Cities still offer physical connections, sensory stimulation, and confrontation in ways that the virtual landscape only hints at: where better to hear an opera or make a date, encounter a demonstration or eat a hot dog? Where better to stroll? Where better to meet in person, after meeting online? The urban formula attracts demographic extremes, young and old.

At the same time new communications tools allow business dispersal into the countryside, we are finding new roles for cities. Political economist Saskia Sassen foresees a global consolidation of cities into key communications, cultural, and financial centers, citing a continual need for urban "agglomeration." The relationship between making connections (whether by subway or screen-to-screen) and actual buildings calls for broad new thinking—architectural thinking.

Some of us are already deeply involved. Although Europe has enjoyed a tradition of architects who both understand urban theory and build actual structures, the United States has fewer exemplars. In New York, architects like Marilyn Jordan Taylor and David Childs at Skidmore Owings and Merrill have grasped the new reality and are deploying their vision pragmatically in new architectural projects. They talk as easily about the interface between subway, rail, and airline terminals as they do the character of the street. Not obsessed with map-making, they are becoming proficient at envisioning how buildings fit into the larger urban web: simultaneously, they are asking how the new Penn Station will relate to both JFK airport, many miles away, and to Eighth Avenue, which flanks it.

While architects will continue to be concerned with construction and the limits of detail, the new century demands that we embrace the evolution of cities, offering them our analytical skills, our ability to conceptualize at the mega, as well as the minor scale, and our ability to think synthetically. As a profession, we continually make the mental connections that cities require, not only for urban planning as we have known it, but for a new urban architecture. Cities will benefit from our wide-ranging thought, as we stretch to meet the dynamic, challenge-ridden future.



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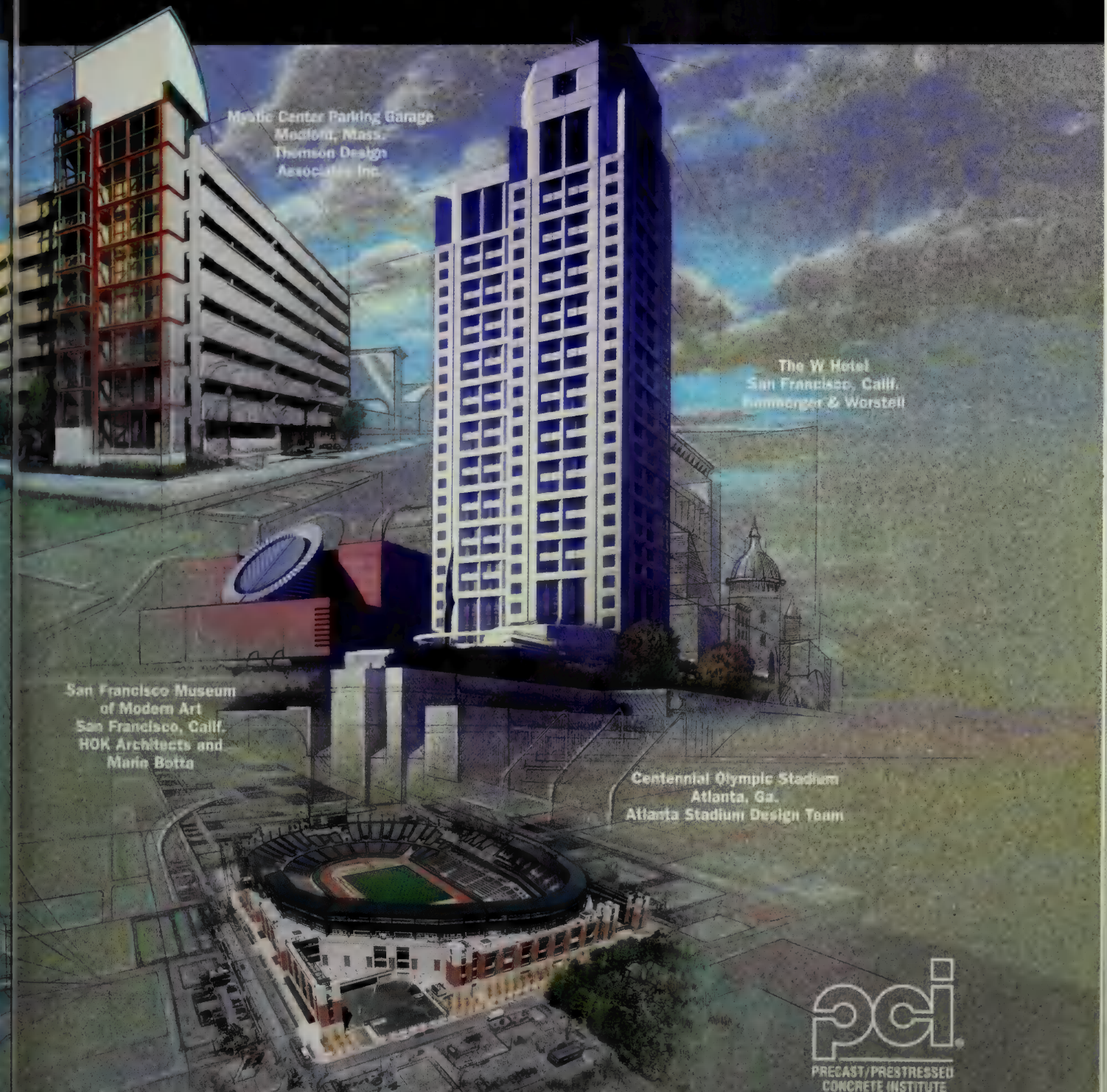
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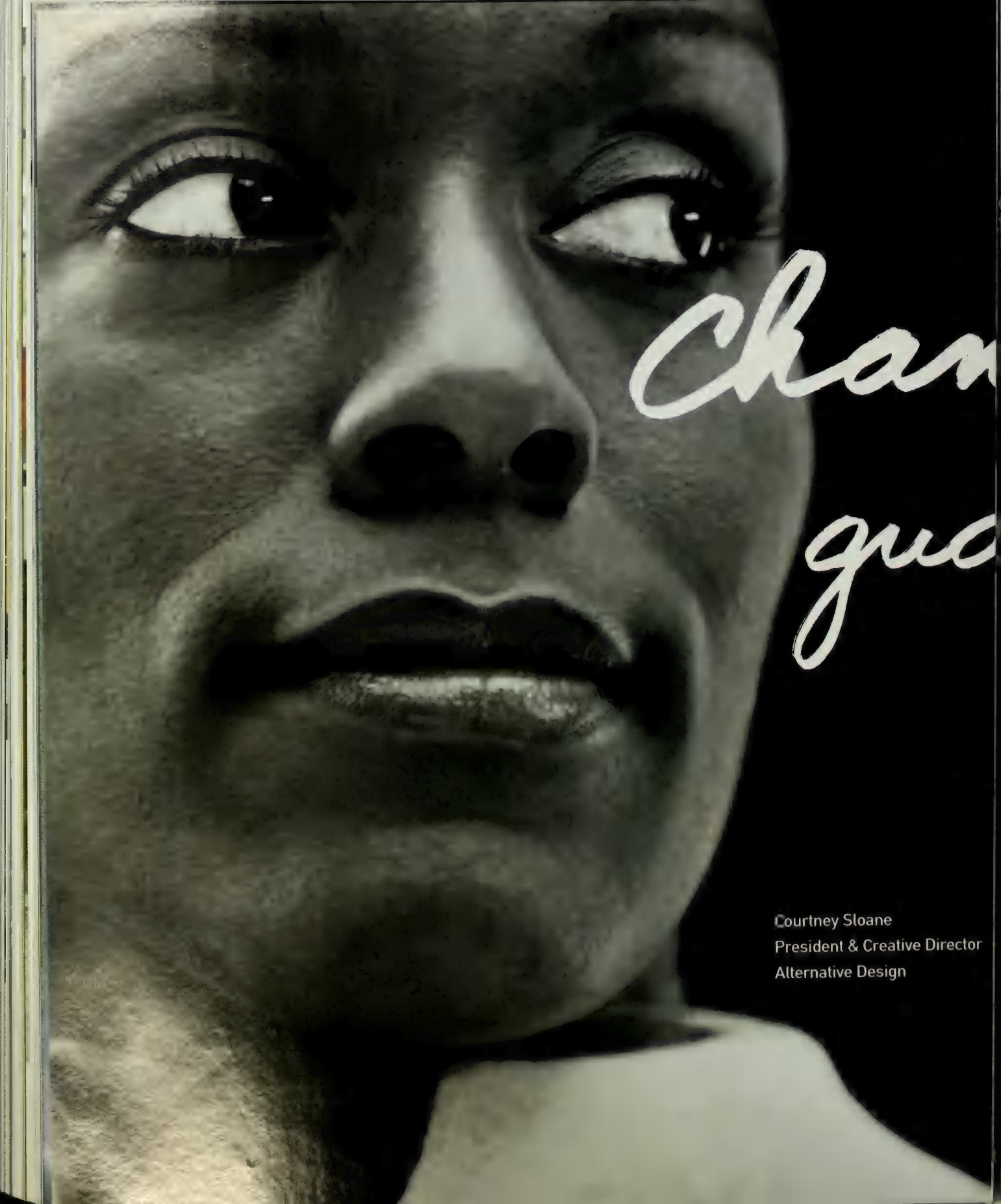
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Letters

School reforms

Your November articles about architecture and schools [Building Types Study, page 111] showed that exciting innovations are coming to the classroom. We are discovering that design really does matter, not only for its aesthetic qualities but also to foster better learning.

A number of studies have correlated building design and construction with students' ability to learn. Published data gathered over a period of years from several school districts has demonstrated that students in better-designed classrooms actually progressed faster in math and reading. They often attend more successfully to their tasks, which is an especially compelling finding since asthma among children is increasing and learning disorders like hyperactivity currently prevent children from doing their best. (While the causality is not well understood, many researchers feel environmental considerations play a role.)

To create healthier high-performance classrooms, school districts in North Carolina, Washington, Colorado, and California are relying on full-spectrum artificial light, optimum siting, increased natural light, and HVAC systems with highly refined filters that greatly improve indoor air quality.

Schools designed for children and teachers to perform their best are becoming more and more affordable—saving money for local taxpayers over the life of the building, as energy efficiency is dramatically increased and operating costs greatly reduced. By 2020, technology should enable the capture of daylight [illegible] later transmission and distribution. Fuel cells and photo[illegible] technologies (which [illegible] s/s-[illegible] to be virtually self-powered. And advanced triple-effect heat pumps, better air filters, and new refrigerants are also changing quality and cost considerations.

In addition to funding ongoing research into energy-efficient design, the State and Community Programs-Building Technology division of the U.S. Department of Energy helps architects and school districts learn about these better approaches. In a world that increasingly requires an educated, technologically savvy workforce, it's an investment well worth making.
—Mark E. Ginsberg, AIA
Building Technology, State and Community Programs division
U.S. Department of Energy

Girls and boys

During my years in other firms and at professional meetings, I have consistently had my status as a licensed architect doubted, disregarded and challenged by male architects. Architecture is still very much a "boy's" game. Only a man could miss the ugly little boys' world we women are forced to live in to become licensed [January, Editorial, page 15].

Even the newest male architects will hand papers to a woman to photocopy. She will be consistently denied promotions and leadership roles (in favor of men who are younger and sometimes unlicensed). My clients and contractors are more prepared to accept my professional qualifications than the greenest of licensed males.

My credentials have been greeted with open disbelief. I have been repeatedly admonished, after an introduction to a male architect, that I must have a license before I can call myself an architect—as if women were not allowed to take the exam. Even after I've been introduced to male architects, I am often subsequently introduced by them as a designer or even a decorator.

I have worked as the only licensed woman in a large office and as the only licensed professional kept in a cubicle while unlicensed men sat in offices. The reasons I have been given for holding women down include: "The management team may not communicate freely with a woman in the group"; "Once you take time off to raise a family, you have to expect to take time to catch up" (I had never taken time off); and the blatantly illegal, "He just got married and is going to have a family to support, so he needs this promotion." The AIA is still part of this boy's world. Groups such as Chicago's Women In Architecture have broken with the AIA in order to have a voice of their own. But the vast majority of women are under the glass ceiling or outside the profession entirely—that is the choice "our" profession gives us.
—Amy B. Reineri, AIA
Casa PC, Newport News, Va.

Thanks for your bright and thoughtful perspective on women in the profession. In the January editorial "Where do women stand?" you give us a touchstone. The short answer is: "Right outside the gate. But why would they want to come inside?" You say it's time to raise "substantive questions about the status of women" in architecture, but for those in this struggle, the time came long ago.

In fact, excellent studies and some worthy literature do raise those questions, and the architectural press has done its job. However, I have come to believe that the structure of the AIA (fundamentally male and pale) resists what seems an inevitable shift toward multiculturalism.

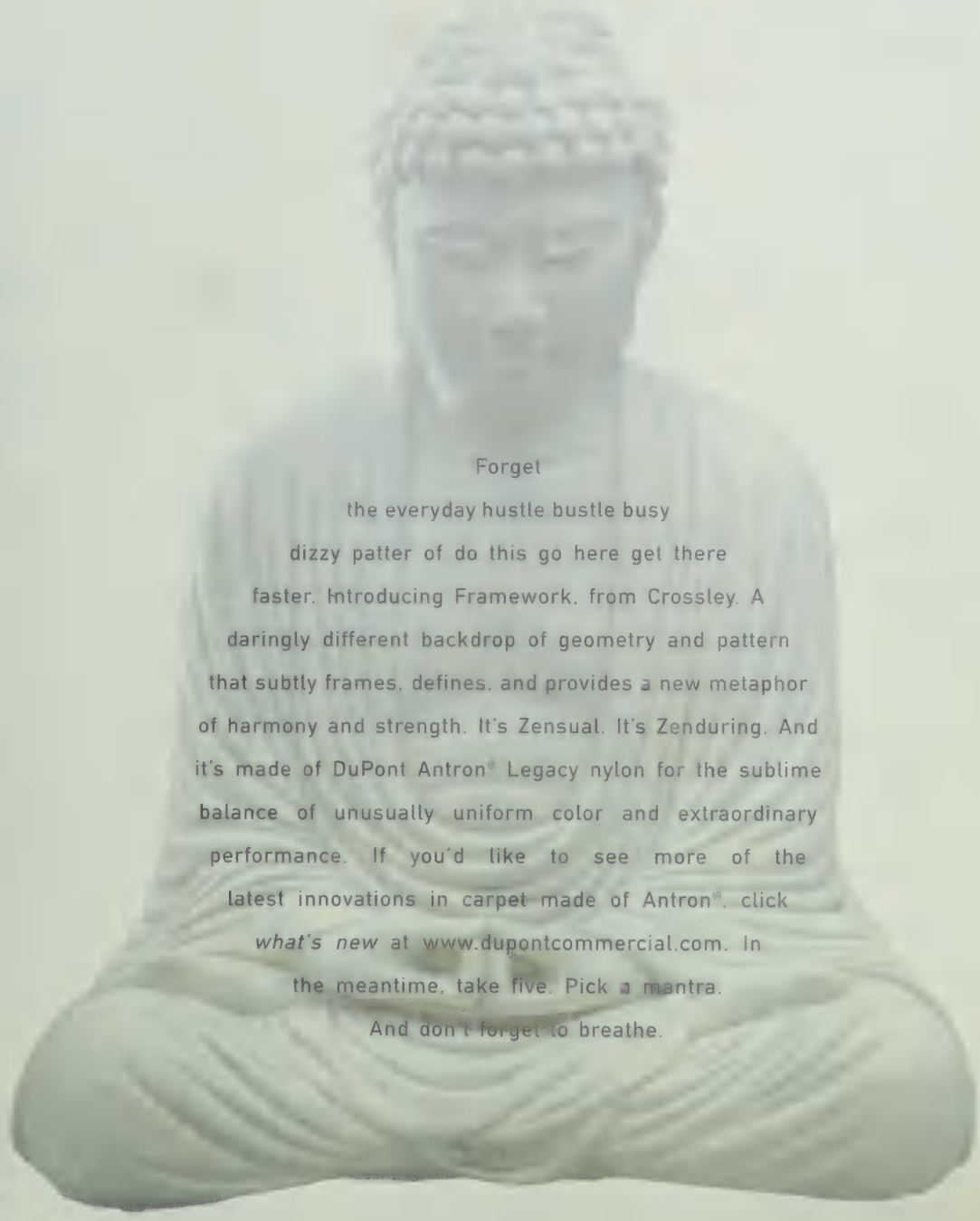
This is probably mostly unconscious, though occasionally it feels intentionally hostile. Specifically, it plays out in the AIA's unaccountable tenacity against feminization—both in the overall lack of women in membership, leadership, and management roles and in the retention of hierarchical, patriarchal organizational attributes.

Regrettably, the results of this persistence appear too regularly and too visibly to "the rest of us"—as in the group photo of the newly ordained 2000 AIA Board of Directors shown in the January issue of *AIArchitect*. It was hardly a representative sample of the diverse energy that drives the profession.

The Board's antiquated reliance on geographic/regional representation helps perpetuate the excessively long and inaccessible ladder to influence and decision-making roles. But, on the hopeful side—at the smaller scale—AIA activity embraces women and "female" attributes. Despite the high cost of dues, which are another discouragement, local chapters enjoy the active participation and perspectives of female architects, many in leadership roles.

Still, the AIA would benefit from a deeper understanding of why women and minorities continue to choose paths outside of what we once thought of as the mainstream of the architectural profession—what was formerly a trickle is now a gathering deluge. I hope your observations help focus attention to bring the change necessary for professional survival.
—Marga Rose Hancock, HON. AIA
Executive Vice President,
AIA Seattle

The patronizing tone of your editorial struck a chord with me and, I suspect, with many women, too. For our profession's leading magazine (and the voice of the AIA) to address women's career tracks or creative and intellectual powers



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Letters

as if they are different from those of men further isolates and degrades women.

Family leave and paternity policy, equitable compensation, medical benefits, and breaking through upper management's fragile glass ceiling are not only women's issues. "Emancipation" from conventions of the profession must push past the equivalent of yet another Annie Leibovitz celebrity spotlight. The broadest reforms in education, alternative degrees, licensure, and practice should be an immediate concern for all. They will benefit all in the architectural profession. Otherwise, we will continue to see the brightest and most ambitious new talent—men and women alike—parlay their architectural training into one of the more progressive fields.
—John M. Rossi, Assoc. AIA
Seattle

Your editorial raised interesting questions about the state of women within the profession. I am registered in Louisiana but employed by the Sweet's Group as an architectural consultant. It's a wonderful job and I am very happy here. I have never wished to affiliate with the various "women in architecture" groups because I never wanted to be known as "a good female architect". I wish to be thought of as *a good architect*. However, I have yet to find a PIA within the AIA that addressed the needs of architects who take the nontraditional career path. That question knows no gender and I have not yet found my niche there. Our own professional organization has failed to recognize the needs of a large segment of its membership.
—Cynthia Belisle, AIA
via E-mail

Good enough government work

I was very impressed with your article on the "nation's biggest landlord." I am a project manager for the City of Savannah Design & Construction Group, and we are heavily involved in facilities management of approximately 140 municipal buildings. Until 1996, Savannah never had a buildings program per se. But today we follow a process of hiring consultants (using SF254 and SF255) that eliminates any bias and/or skewed opinion. A panel of five evaluators (including the purchasing administrator, PM, and user) evaluates RFQs independently and assigns "quality points," which are then submitted to the purchasing administrator. Also submitted is the fee proposal, in a sealed envelope. The PA determines each firm's "quality point/dollar ratio," and the contract is awarded to the firm with the best ratio. We have seen a significant increase in interested firms and great improvements in the quality of work by consultants who are not competing simply on a fee-based proposal. I strongly encourage similar municipalities to adopt this system.
—Rumit Mehta
Savannah

Black-and-white landscape

Catching up on my reading, I was delighted with November's photo essay, "A Lens into the Gardens of Le Nôtre" [page 68]. It transported me back to the fall of 1955. I was 21 and part of the American sector occupation forces in Germany; she was a Danish student at school in Paris. Together, we saw Versailles—but the images were fading. The scenes so skillfully captured by Becky Cohen brought them to life again. Thanks for understanding how black-and-white photography helps to focus us on images that can be blurred by the confusion of color.
—Dick Thevenot, HON. AIA
Executive Director, AIA Louisiana

Corrections

Colab Architects' Mark Engberg and Lawrence Ko were not mentioned in our December story [page 138] on the Times Square television studios that host ABC's *Good Morning America*. The Michigan Architecture Papers [December, page 49]—a collaboration between faculty, students, distinguished architects, and scholars—were produced by a team including Brian Carter, Jason Young, Kent Kleinman, Annette LeCuyer, Caleb H. Clauset, Dennis B. Smith, Carla Swickerath, and Christian Unverzagt. Brian Carter was incorrectly identified in the story. He is chair of Architecture at the University of Michigan.

In November [page 177], Lucifer Lighting products were incorrectly identified. The fixture labeled "ScapeLight" is actually called "Scapebeam." The fixture we identified as a "Light Chime" is actually the "Scapebeam Pendant." What is more, Lucifer Lighting (www.luciferlighting.com) is in San Antonio, not Austin.

On page 138 of the February issue, images of the computer tests on the dogbone connections were courtesy of Ove Arup & Partners. ■

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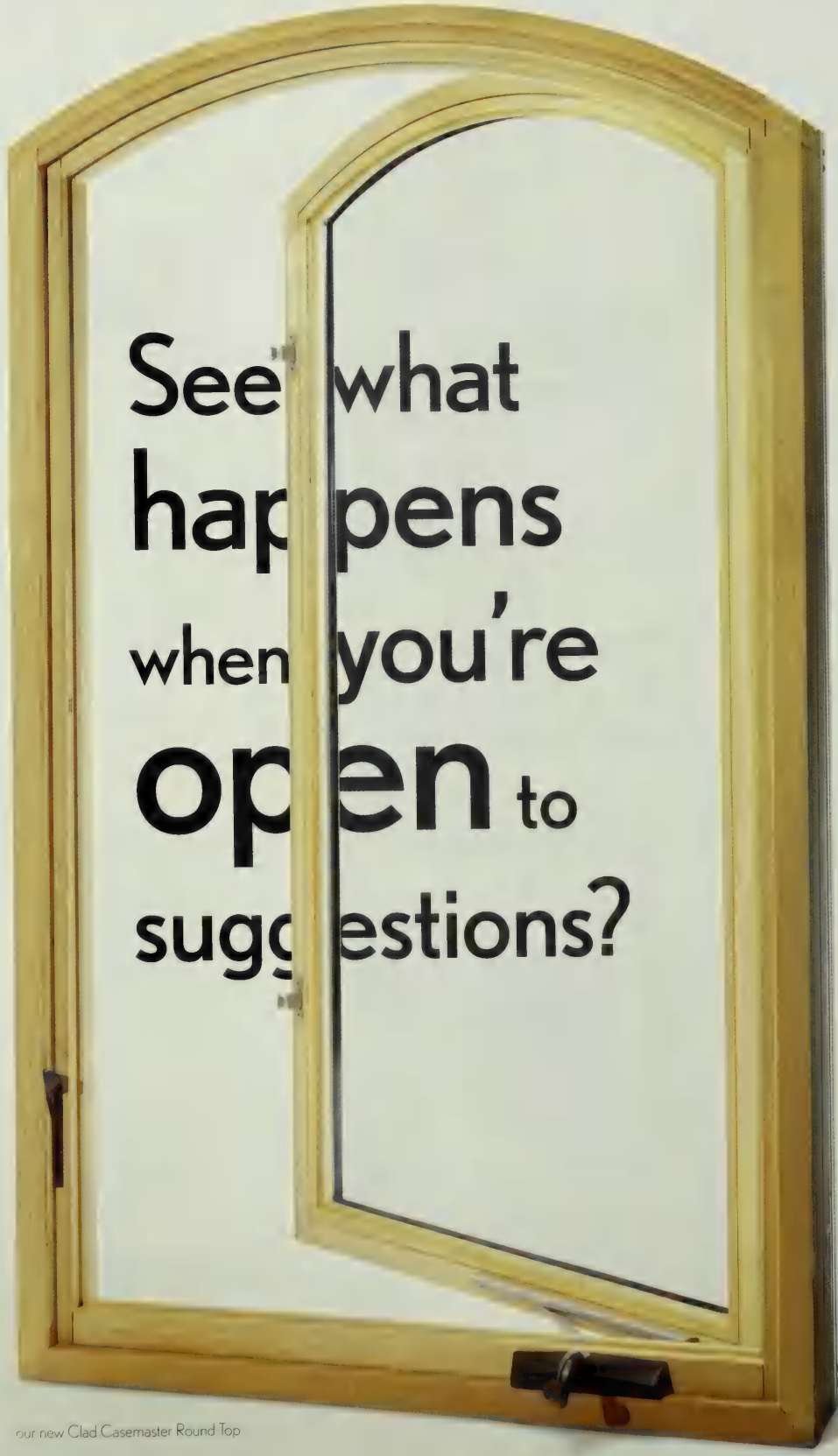
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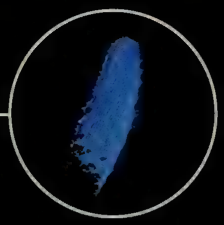
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In Flander's Field—Where Soldiers Sleep and Poppies Grow, Robert Vonnoh
Courtesy of The [illegible] Institute of American Art, [illegible]

Record News

Bulletin Coffers open for GSA projects p.29
Critic Bruno Zevi dies p.31
Minneapolis' Open Book Center p.32
A New Era for Dorms p.34

THE SEAGRAM BUILDING'S LONG-LIVED BRASSERIE STARTS OVER WITH A DILLER + SCOFIDIO REDESIGN



New York City's Brasserie has entered a new stage in its storied architectural history. Located in Mies van der Rohe's Seagram Building, on the opposite side from the Four Seasons, the original Philip Johnson-designed restaurant opened in 1959 and served a hip midtown crowd for many years, before faltering in popularity and then succumbing to a fire in 1995. Now, local firm Diller + Scofidio—much talked about since last year as the only architects to snare a MacArthur Foundation "genius grant"—has revamped the eatery in an ultramodern style that plays with diners' perceptions.

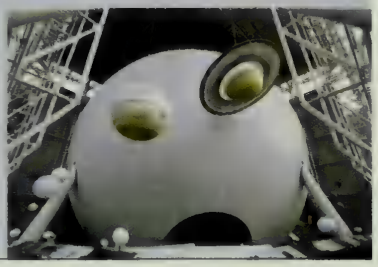
"The space changed entirely," says Elizabeth Diller, noting that Johnson's restaurant "was a sequence of spaces; now, it's one long stretch." The architects updated the front-and-center staircase, which "had always produced a sort of grand entry," says Diller. "We wanted to 'theatricize' it a bit more." The descent of the glass stairs was elongated, depositing diners' nearer the center of the room.

All told, the establishment's new owner, Restaurant Associates, invested $5 million in the makeover, which produced a warm space clad in curving pearwood, dotted with translucent epoxy-resin green tables (covered with tablecloths for dinner) and lined with booths on one edge. On the other side of the room, opposite the booths, is the bar, over which hang 15 video monitors that display restaurant-goers as they approach the street entry. As new people enter, the images are bumped down the line of monitors in chronological order, eventually disappearing. Behind the bar, rows of wine and liquor bottles float behind a translucent white resin wall. The architects also played with ideas of voyeurism in the bathrooms, where a single sink runs through a slot in the wall dividing the men's and women's rooms.

Diller concludes: "We kind of thought of the space we inherited as an old coat that just needed a new lining." *Soren Larson*



A STAR IS BORN Amid the kind of media hoopla reserved for buildings such as Gehry's Guggenheim Bilbao, one of New York City's most eagerly anticipated new public spaces opened last month: the $210 million Rose Center for Earth and Space, an ambitious new project at the American Museum of Natural History designed by Polshek Partnership Architects [May 1998, page 105]. The complex facility looks deceptively simple: an 87-foot-diameter, aluminum-clad sphere apparently suspended inside a 95-foot-high cube of colorless glass. The upper hemisphere encases the high-tech Space Theater, and a curved ramp exhibiting the history of the universe winds around the sphere's exterior. The museum considers the Rose Center light years ahead of its predecessor, the 1935 Hayden Planetarium. *S. L.*



CLINTON'S PROPOSED BUDGET OPENS COFFERS FOR ARRAY OF EMBASSY AND COURTHOUSE PROJECTS

President Clinton's proposed Fiscal Year 2001 budget includes over $1.3 billion earmarked for architectural projects. Most of the money falls in the domain of the General Services Administration (GSA), which handles domestic projects, or the State Department, which handles foreign properties, such as embassies and consulates.

The top priority for both agencies is the joint undertaking of a new U.S. Mission to the United Nations in New York City. That project alone carries a $58 million price tag. The bulk of the GSA projects would be courthouses, with seven new federal court buildings on what GSA spokeswoman Vicki Reath referred to as "the wish list." Sites include Los Angeles, Seattle, Richmond, Biloxi-Freeport, Miami, Little Rock, and Washington, D.C.

Equal in number, but smaller in scale and budget, are border stations, to be built in Texas, Michigan, Montana, and Maine. The total construction program for the GSA is $779.8 million.

The State Department's projects are the line item dubbed "Embassy Security, Construction and Maintenance." In addition to the funds for the U.N. Mission, $647 million was requested for security upgrades, including design and/or construction of facilities in Cape Town, South Africa; Damascus, Syria; Rio de Janeiro, Brazil; Sofia, Bulgaria; and Yerevan, Armenia. This money will also go toward new U.S. Agency for International Development facilities in Kampala, Uganda, and Nairobi, Kenya.

Lest any architect start looking for a commission, bear in mind that the Fiscal Year 2001 budget was submitted by President Clinton in early February. It will wind its way through Congress before gaining approval in some final form in the fall. The good news, though, is that the administration also recommended that $14 billion over the next 10 years go toward new embassy construction. *Ellen Sands*



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INFLUENTIAL CRITIC BRUNO ZEVI DEAD AT 81



Bruno Zevi, an influential Italian architect, historian, critic, and politician, died in January at his home in Rome. He was 81.

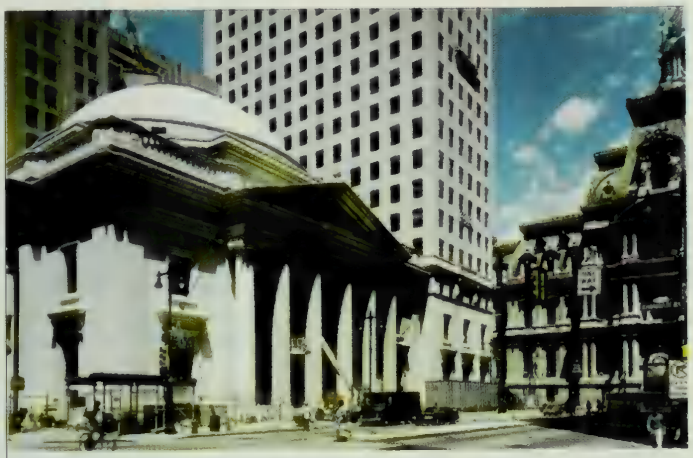
Zevi's writings include *Towards an Organic Architecture* (1950), *Architecture as Space: How to Look at Architecture* (1957), *The Modern Language of Architecture* (1978), and a classic history of modern architecture, *La Storia dell'architettura moderna* (1950). He edited the magazine *L'Architettura: Cronache e Storia,* which he founded in 1955, and wrote criticism for the news magazine *L'Espresso.* Zevi also taught architectural history in Venice and later in Rome.

His political activism, which began in the anti-Fascist Justice and Liberty Movement, positioned him after World War II as a founder of the anti-Communist liberal Action Party, and later as a member of parliament in the Radical Party.

The bases of Zevi's intellectual formation were disparate: Italian, American, and Jewish. Heir to a long tradition of Italian cultural historiography, he was influenced by Benedetto Croce's aesthetic philosophy, which proposes art as autonomous knowledge, that is not subordinate to science or technology. The American source was Frank Lloyd Wright's organic architecture, which Zevi saw as an expression of democracy (Zevi studied architecture at Harvard during a stint in political exile). In Jewish culture, Zevi saw an anticlassicist, antirepresentational bias toward expressionism.

The postwar Italian architectural profession owed much to Zevi, yet he was somewhat an outsider in a culture nurtured in Milan and Venice by Ernesto Rogers, Rogers' disciples Aldo Rossi and Vittorio Gregotti, and historian and theorist Manfredo Tafuri. They used the journal *Casabella* as well as architecture schools to configure what became the prevailing neo-Marxist and neo-Rationalist culture.

Zevi organized *L'Architettura: Cronache e Storia* in part as a reaction to Rogers' unwillingness to let him codirect *Casabella*. Yet even Tafuri, who died in 1994, in his *History of Italian Architecture, 1944-1985* attested to Zevi's "historical significance." *Frank Spadaro*



A MCKIM, MEAD & WHITE BANK IN PHILADELPHIA PROVIDES A CLASSIC HOME FOR THE RITZ-CARLTON

Last decade, looking for a new spot for a luxury hotel in Philadelphia, the overseers of the Ritz-Carlton found the perfect opening: a pair of neoclassical McKim, Mead & White structures, right across from City Hall, that a local developer had recently purchased from the longtime occupant, the Mellon Bank. The structures—a domed building from 1908 and an adjacent 30-story tower added a little later—came on the market in the mid-1990s when fire damaged the tower, and the bank decided to sell the lower building, as well.

The Ritz-Carlton worked a deal with developer Craig Spencer to turn the buildings into an elite 330-room hotel and conference center and hired The Hillier Group's Philadelphia office to rework the exterior and create new entry and office spaces. Hirsch Bedner & Associates was brought in for the interior design of the hotel, which should be open in late spring.

Hiller set to work at cleaning the marble exterior—a job finished late last year—and remodeling the interior to accommodate extensive new infrastructure while taking pains to appease landmark preservation agencies. "It's amazing how well the hotel program actually fit in," says James Garrison, AIA, the project architect. "There were no significant interventions."

Teller desks were removed, while two skylights—in the ceiling and in the floor over the vault—were maintained, along with a row of columns surrounding the new lobby. A monumental new staircase will lead to a junior ballroom on the second floor, and the former vault, in the basement, will become a 6,000-square-foot ballroom. *Soren Larson*

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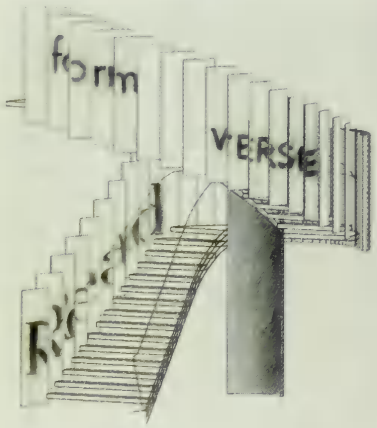
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READ ALL ABOUT IT: THE OPEN BOOK CENTER

Three turn-of-the-century brick buildings near the fast-changing Minneapolis riverfront will soon become a literary arts center called Open Book. By connecting the three-level buildings and inserting a mezzanine, architect Meyer Scherer & Rockcastle (MS&R) created contemporary space for three nonprofit tenants—The Loft Literary Center, the Minnesota Center for Book Arts,



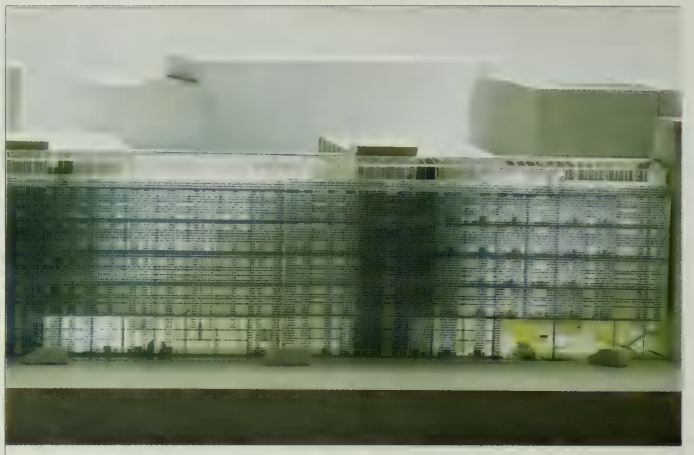
and publisher Milkweed Editions—plus a cafe, classrooms, performance space, writers' studios, informal gathering spaces, and a popular independent bookstore, Ruminator Books. While retaining most of the original exterior, MS&R brought more daylight inside with a glass facade at street level that wraps around and into the center lobby atrium.

In the atrium, principal architect Garth Rockcastle, collaborating with book artist Karen Wirth, sculpted a spiral staircase tying all the floors together. The steel staircase is structured like a book turned inside out, with its stitches pulled apart from the center binding. The 6-foot-high "pages," made of translucent Lumasite, radiate out from the stair railings. Rockcastle sees the Open Book's staircase as a metaphor for "joining the craft of bookmaking with literary content."

For MS&R's project architect, Kate Bergquist, the renovation has been similar to book editing, as the firm saved an old bank vault and reused huge industrial doors as room dividers. Where contractors cut passages through the three structures, the architects left steel reinforcements exposed. "It's like revealing the past and beginning to show what's coming," said Bergquist.

The three buildings originally housed a variety of manufacturing and wholesale businesses, but recently fell into disrepair. Today, the neighborhood, just a few short blocks from the river, is showing new signs of life as old flour mills are being converted into housing and the Guthrie Theater may relocate nearby. The University of Minnesota campus lies only six blocks away.

The Open Book project will cost $6.75 million, and the three nonprofits are close to reaching their fund-raising goals. The trio is gearing up for a major public opening on May 21. *Bette Hammel*



IN HIS FIRST PROJECT IN PARIS, JAPAN'S TOYO ITO WILL DESIGN THE NEW COGNACQ-JAY HOSPITAL

Toyo Ito finally stepped onto the Parisian scene in October last year with his successful bid for the new Cognacq-Jay hospital. And he had to beat some stiff competition: John Nouvel, Dominique Perrault, Paul Chemetov, and Borja Huidobro, and Architecture Studio battled it out to design the $18 million project.

With the closure of the Saint Jacques hospital in the 15th *arrondissement* and the demolition of the old Cognacq-Jay, local private facilities will be consolidated. Ito's building will more than double the size of the present one, increasing the current capacity from 72 to 152 beds. Although "destruction was not an obligation in the brief," notes Frédéric Nantois, architectural advisor on the jury, it was considered necessary because the existing facility is unusable. Only Chemetov suggested preserving an old pavilion, "but it was more decorative [than anything]," adds Nantois.

Central to the project will be a large garden, into which will extend three blocks containing private rooms, thus giving each a view onto the green space.

Glass elevations along rue Blomet and rue Eugène Millon will be both transparent and translucent—an Ito trademark—while the interior facades will consist of "a wooden grill, or [a type of] slat," Nantois says. Circulation between sections will be via the first sublevel, and the garden will be landscaped in such a way that ample daylight will stream into this lower level.

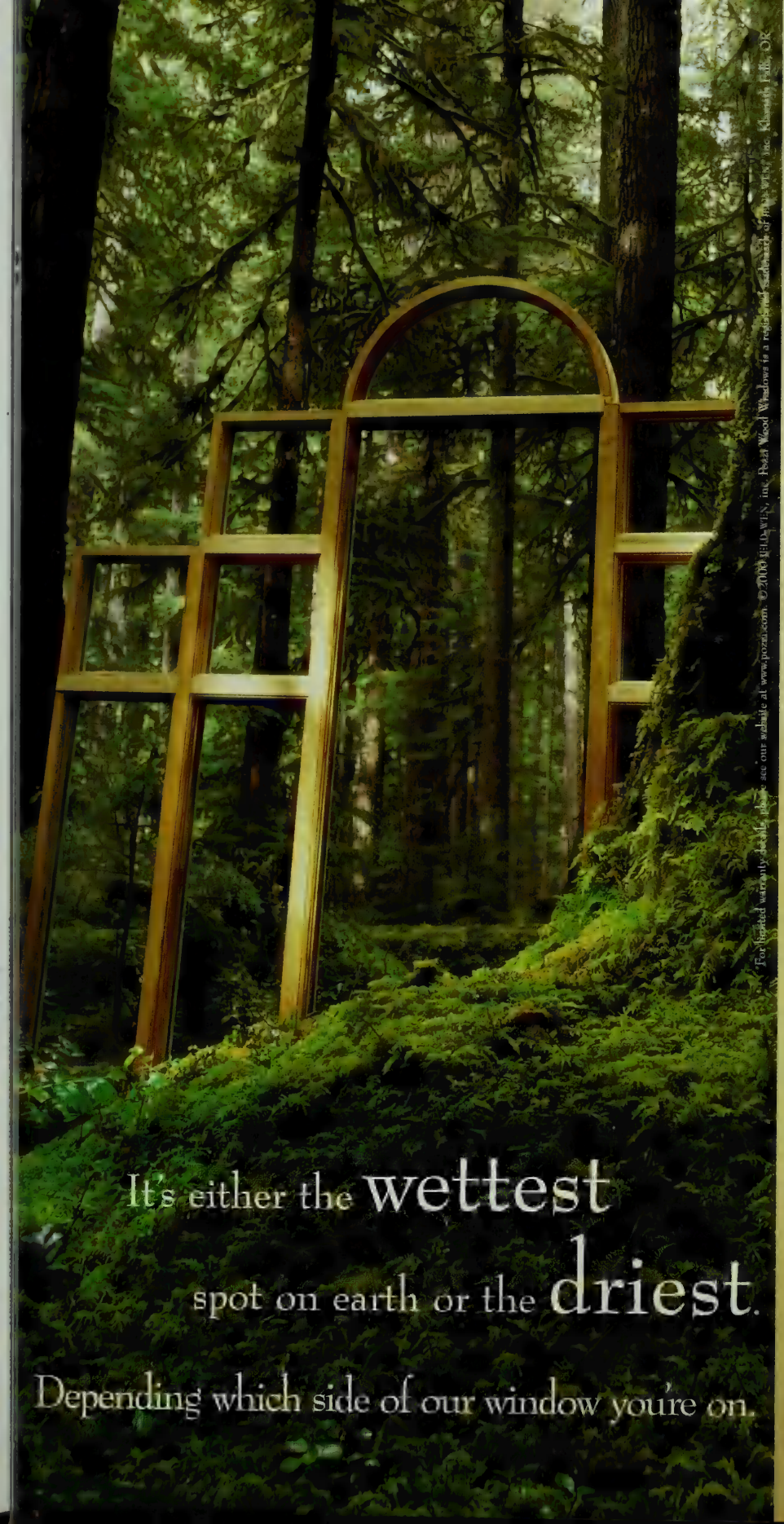
This is not Ito's first attempt to win a Parisian contract. Proposals for the Maison de la Culture du Japon (1989) and the library for the University of Paris, generally known as Jussieu (1992), both missed that mark. The 2003 completion date for the Cognacq-Jay will represent what is likely to be an exciting new stage for the Japanese architect. *Robert Such*

KOOLHAAS, HERZOG & DE MEURON TEAM UP FOR A HOTEL DESIGN

The craze for boutique hotels in Manhattan shows no signs of abating, and the most recently announced addition boasts quite an architectural pedigree. Hotelier Ian Schrager (who's already opened the Paramount, Royalton, and Morgans hotels in New York City) has persuaded Dutch designer Rem Koolhaas and Swiss firm Herzog & de Meuron to team up for the design of a hotel that will rise on a parking lot next to the Cooper Union, near Astor Place. Koolhaas and Herzog & De Meuron will work in a partnership and expect to present an initial design proposal in April.

"I've been familiar with [the architects'] work for some time," says Schrager, a native New Yorker, who has never developed a project from the ground up in his hometown. Neither architect has built from scratch in New York, either. "[Koolhaas] is a great thinker, and Herzog & de Meuron have that lyrical, poetic side," Schrager adds. "These aren't corporate architects. What I wanted to do was stand the New York architectural world on its head."

Cooper Union owns the parking lot where the hotel will be built, across the street from its own landmark Foundation Building. The hotel might be around 12 stories, while the ground floor and two floors below will house screening rooms and perhaps a bookstore and restaurant. Construction is expected to begin this year. ***Soren Larson***



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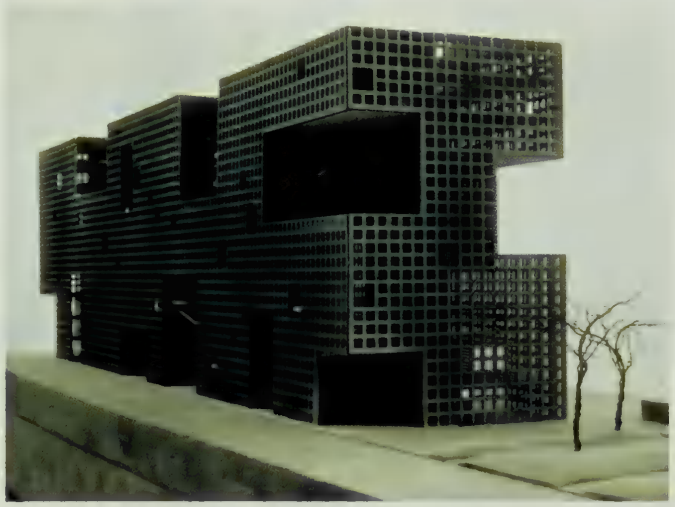
REDOING THE DORM: A NEW ERA FOR HOUSING

According to Scott Smith, AIA, of Sasaki's San Francisco office, the days of cinderblock dormitories with students sharing crowded rooms are long gone. Today's college kids want more from their housing arrangement—much more. To compete with off-campus alternatives, "collegiate housing increasingly emulates private sector models," Smith says; these new priorities "reflect very different concerns from those embodied in traditional dormitories or residence halls."

Across the country, colleges and universities are looking to provide a range of amenities and comforts in new housing, as well as improvements in overall infrastructure (RECORD, February, page 77). In terms of dorms, Sasaki has been asked to design a variety of private, semi-private, and public spaces for socializing and learning. The firm adds computer network connections, cable television, pools, conference facilities, and washer/dryer hook-ups in individual units. Programs are becoming more complex to include cafes, group study rooms, seminar rooms, and visiting-faculty apartments.

Universities are also becoming more daring in choosing their dorm designers. At the University of Toronto, work is nearing completion on a 163,000-square-foot graduate-student residence designed by Morphosis. The building, scheduled to open this spring, has created controversy: not everyone on campus admires the nontraditional appearance, and some are concerned about the dangers of having a two-story steel letter O project over a busy intersection (it completes the university's spelled-out name; the preceding letters are made of glass and fixed to the facade). The residences [illegible] in layers of perforated [illegible]







The first Canadian project by Morphosis goes up in Toronto (top); a model of Steven Holl's residence at M.I.T. (middle); Sasaki's dorms for SF State.

aluminum siding over black pre-cast ribbed concrete panels and aluminum windows. The rooms are grouped around a central courtyard.

Stephen Teeple, whose Toronto firm won the design competition with Morphosis, says the courtyard "will define a great outdoor space for students." Thom Mayne, AIA, of Morphosis says the building was produced within a constraining budget, which he said "was not an easy task—but the client thinks we got quite a bit of building out of it." Mayne dismissed concerns about something falling off the cornice over the intersection, adding that "if a building says something it's bound to engender agreement and disagreement. It's not an architect's role to worry about whether people like or dislike a piece of work. The bigger problem is if nobody notices it as it goes up."

M.I.T. and beyond

At M.I.T., Steven Holl, AIA, has designed a 350-bed residence that he calls a "vertical slice" of the city, 10 stories high and 330 feet long. Amenities include a 125-seat theater, a cafe, and additional dining on street level. Corridors are 11 feet wide and meant to act like small streets, leading students to happen upon "urban experiences." The unusual form is based on a "sponge" concept: the mass has five large-scale openings, corresponding to entrances and corridors, and an abundance of smaller perforations that allow in light and move air up through the sections. Each single room has nine operable windows.

At Rice, Boston's Machado and Silvetti Associates has designed a 163,000-square-foot complex that includes a residential college and a series of dining facilities. The dorm will surround a courtyard on three sides and is laid out primarily in suite-type arrangements. The program also includes a variety of common spaces, including a library, computer rooms, seminar rooms, and recreation facilities.

At Colorado College in Colorado Springs, Sasaki is producing apartments and theme houses with a commons, a coffee shop, laundries, and social and academic "living rooms." Meanwhile, at San Francisco State, Sasaki is working on urban housing that addresses urban design as well a campus planning issues. At the University of New Mexico, the firm is creating a 400-bed project in apartment-style housing including common spaces, laundries, and housing offices.

"Now you simply have to offer something more than just a bed," says Sasaki's Smith. "This, along with distance learning, is causing colleges and universities to completely rethink housing." *Soren Larson and Albert Warson*



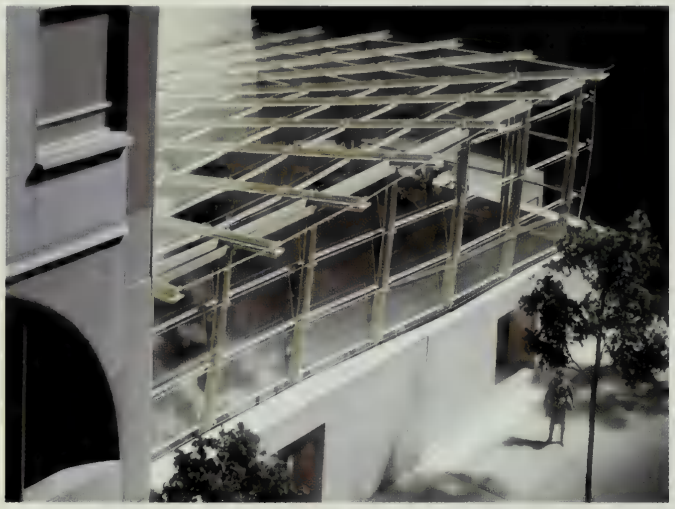
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ASIA SOCIETY ADD-ONS PASS LOCAL MUSTER



The Asia Society has commenced construction of a $30 million renovation and expansion of its Manhattan headquarters, designed by Edward Larrabee Barnes and built in 1981, with completion expected in late spring. The current project, designed by Voorsanger & Associates Architects, will add 5,000 square feet to the existing red granite building in the form of an expanded rooftop enclosure, extended service alley, and new mechanical support area.

The original design was thought by some to be hostile to its surroundings, yet it has recently inspired strong loyalty from area residents; the expansion was much delayed due to community opposition. The dispute was sparked by the first renovation scheme's intended relocation of the existing Park Avenue entrance. The community attempted to block the move and asked that only the interior of the building be altered. Letters to the city's Landmarks Preservation Commission were written by architectural historians and Barnes himself, protesting the reconfiguration of his own design.

As a result, the new, approved scheme does not change the Park Avenue facade, but instead reconfigures the interior, focusing on the new skylit garden court and its sculpture, plantings, and cafe. What were once administrative and support service areas have been converted to gallery space, and the lobby entrance has been expanded to accommodate a theatrical blue glass stairway. Other materials—such as bamboo floors, birch for the lobby ceilings, and rice paper laminated with glass—evoke Asian architecture.

The dynamic entrance stair was intended by the architect, Bartholomew Voorsanger, FAIA, "to add life to the building, as the space should be visually and aesthetically kinetic; it should keep moving." The scheme also allows for up-to-date communications technology infrastructure, an expanded store, and designated sites for several contemporary artworks commissioned by the Asia Society. *Susanna Sirefman*

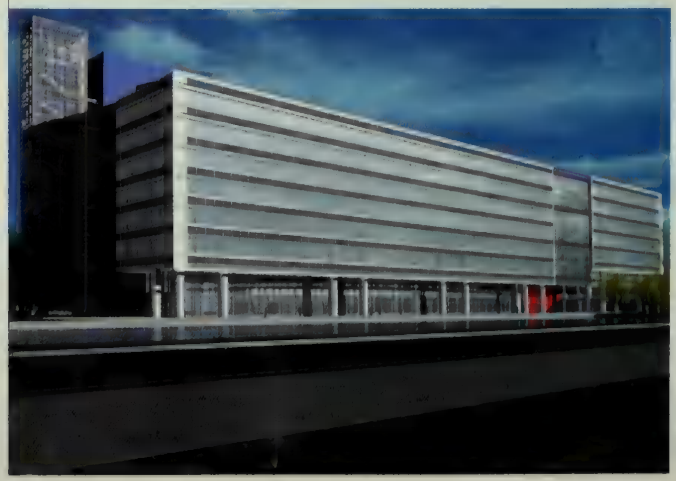
AUSTRALIAN DUO WINS COMPETITION TO DESIGN NEW TICKET BOOTH AT CROSSROADS OF THE WORLD



The TKTS booth in Times Square draws a daily crowd seeking off-price tickets to Broadway shows. While the spot now holds a rudimentary installation built in 1973, bargain seekers may soon be lining up at more sophisticated facilities. Australians John Choi and Tai Ropiha have won a competition, directed by the Van Alen Institute, to design a permanent TKTS facility as an official project [illegible] York City [illegible].

The winning proposal is a wedge shape accommodating two uses within one footprint. The ticketing functions are housed within the wedge, while its roof —covered with stairs made of red resin planks— provides visitors with a place to rest. Now the proprietor, Theatre Development Fund, will decide whether to build the prize-winning design (it and other top entries are on display the Van Alen Institute through May 1). *Soren Larson*

GM REVS UP **San Francisco's Kaplan McLaughlin Diaz (KMD), along with consulting engineers Ove Arup, has completed a campus renovation plan as well as the design of a new 960,000-square-foot facility for the vehicle engineering center (VEC) at General Motors' campus in Southeast Michigan. The historic campus, called the Warren Technical Center, was originally designed by Eero Saarinen nearly 50 years ago, and KMD's updated master plan preserves the legacy of Saarinen's work while creating a more flexible, interactive, high-tech environment. The most highly visible new feature will be a huge VEC addition, an eight-story structure (below) that will rise next to a manmade lake. GM is investing $1 billion in the Warren campus to consolidate its engineering functions. Site preparation has begun for the project and the estimated completion date for the VEC tower is August 2001, with the renovation of existing VEC portions of the VEC scheduled for April 2002.** ***S.L.***



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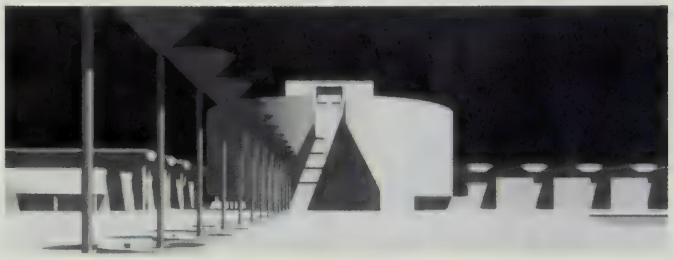


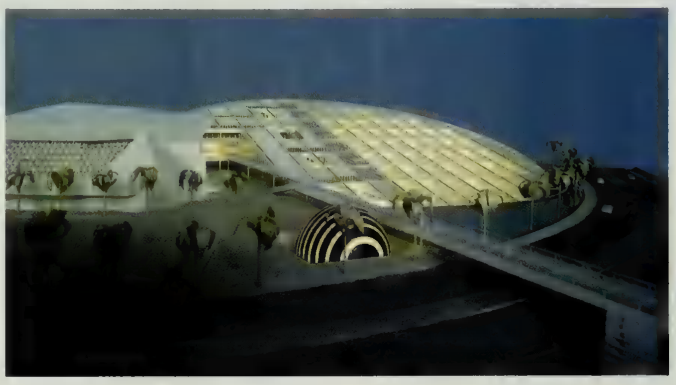
MIDEAST LIBRARIES BRIDGE OLD AND NEW

The Koran speaks of every nation being "called to its book." The new British and French national libraries embody this idea, expressing and preserving their nations' identity. By taking the first steps toward establishing the new King Fahad National Library, Saudi Arabia embraces these same goals. Meanwhile, Alexandria, Egypt, is returning to its literary roots.

In a limited competition last October, seven finalists presented schemes for a new national library in Riyadh, Saudi Arabia's capital. The winning design (top right), by Swiss architect Mario Botta, addresses the expansive site—18 football fields in size—with an iconic, circular library tower set within the desert landscape. Low-rise structures surround the tower, with the total library area reaching over 420,000 square feet.

The Kingdom of Saudi Arabia was founded in 1932, yet, there is great breadth to the culture in this cradle of Islam. The desire to reconcile the modern and ancient is reflected in the library's mission, with the Kingdom Information Center, 500-seat auditorium, and gallery spaces as key components. The desert environment, where the temperature rises above 90 degrees an average of 205 days a year, and the culture's strict segregation of the sexes were among the unusual factors the competitors faced. Strategies to provide shade and filtered light were mandated. The entry sequence and circulation had to ensure gender separation throughout the complex, culminating with a separate Women's Library. Construction should begin in 2001.





Rebuilding the past

Alexandria [illegible] a new [illegible] Egypt [illegible] a new [illegible]

Alexandria Library, thought by many scholars to have been destroyed in the third century, is being rebuilt with a design by a consortium of Norwegian firm Snøhetta and Hamza Associates of Egypt (Snøhetta won a competition in 1989 and later joined with Hamza for planning and site supervision).

The building's circular form is designed to evoke objects in astronomy, a field in which the ancient library excelled. The roof, reminiscent of a computer microchip, merges contemporary technological issues with the fundamental aspects of our place in the cosmos, according to Snøhetta's Craig Dykers. The surrounding stone wall, of Egyptian granite, is carved with inscriptions in various alphabets and helps protect the library from seasonal Saharan winds. The 800,000-square-foot structure will be located on the Mediterranean at almost the same site of the ancient library complex,

With space for five million volumes, a computerized catalog and 500 built-in Internet ports, the library could be the most advanced in the Arab world when it is completed later this year. More than half the $175 million construction cost has been paid by the Egyptian Government, with the rest coming from international donors rallied by the United Nations Educational, Scientific, and Cultural Organization. *Todd Wilmert and Soren Larson*

KNIGHTS OF THE DRAFTING TABLE **What do Lancelot and Jeremy Dixon, architect of the new Royal Opera House in London's Covent Garden, have in common? After the New Year's Eve announcement of the Queen's honors, both are knights of an order that dates back to King Arthur's roundtable. The most recent group of Queen's honors, given twice a year to citizens deemed to have contributed greatly to public service, included a larger-than-usual array of architects. Tokyo-based British architect Mark Dytham, who was made a Member of the British Empire (MBE) for services to British architecture and culture in Japan, describes it as a "huge shock; it is tremendously cool getting it at 35. I see it as a reflection of the New Britain, proud and trusting of its younger generation."**

Julia Barfield and David Marks received their MBEs for conceiving of and designing the giant ferris wheel called the London Eye. Ironically, like many of the honored projects, the wheel, which holds a commanding site on the Thames, has suffered a series of setbacks; it failed a last-minute inspection and couldn't carry passengers on New Year's Eve, as had been much anticipated, though now it has been deemed fit. London's latest subway project, the Jubilee Line Extension (see page 129), was cited three times. Roland Paoletti, head of architecture and station design for the extension, was made a Commander of the British Empire (CBE), as was Ian Ritchie, designer of Bermondsey Station. Chris Wilkinson, designer of Stratford Station, was made an Officer of the British Empire (OBE). Jeremy Dixon's honor is called a Knight Bachelor and isn't appointed to a specific order, so he will not be able to use post-nominal letters after his name, but can use the title Sir. Dixon says he was "very surprised" to be honored, considering some setbacks the opera house has suffered. A dozen performances have been cancelled, due for the most part to teething problems with the complicated, state-of-the-art building management system.

Also on the list were Mike Davis of Richard Rogers Partnership, an architect of the Millennium Dome, CBE; Ian Liddell, design engineer of the Millennium Dome, CBE; Bernard Ainsworth, project director for the dome, OBE; John Gibbons, chief architect of the Scottish Executive building, CBE; Gordon Benson, designer of the Museum of Scotland, OBE; Duglad Cameron, former director of the Glasgow School of Art, OBE; Donald Leeper, director of the country's Building Services Research and Information Association, OBE; Helen Stone, chairman of the Construction Industry Equal Opportunities Task Force, OBE; Ralph Mayer, chief executive of the Housing Association, CBE; Joyce Deans, former president of RIAS, CBE; and Terence O' Rourke, for general town-planning services, MBE. ***Katherine MacInnes***


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A CALIFORNIA FIRM REVELS IN DIGITAL AGE

Last fall, Shubin + Donaldson Architects received three design awards from the AIA's Los Angeles chapter, whose awards program tends to be among the more competitive in the country. The clients of Russell Shubin, AIA, and Robin Donaldson, AIA, however, are much more interested in the team's process.

Donaldson and Shubin are in the vanguard of the many young architects who have embraced computer modeling and imaging technology not only as highly effective communications tools but as design generators. While Donaldson and Shubin insist that cardboard models still play an important role, they use several software programs from the start of each project, and their clients expect it.

"These companies—dot-coms, ad agencies, brand designers—embrace the technology that lets them participate in making places that reflect their organizations," says Donaldson. "Perhaps because they deal in entertainment and because their own businesses are immersed in technology, they understand how technology can heighten the process and get them what they want—a place that's also an experience."



PHOTOGRAPHY: © TOM BONNER

Zero hour

Ground Zero, a growing ad agency whose campaigns are known for their straightforward attitude, asked Shubin + Donaldson to renovate a warehouse in Marina del Rey. At the first design meeting, huge 3-D images of the existing space helped plunge the clients and designers into an exploration of the project's conceptual underpinnings.

According to Shubin, "They wanted to convey how the Ground Zero teams work to uncover the essence of a brand." The result (left) includes a 200-foot ramp that takes visitors through much of the space—where they can see teams at work—before they arrive at reception. Huge scrims, hung from the ceiling, feature projections of abstract or representational images, including some of the company's recent design schemes. The project was completed last year, and the firm is now renovating the building next door to provide the agency with more space for post-production facilities. An open air bridge will connect the two buildings, and the second structure will have a similar plan (very simple) and a similar feel (very layered).

These new economy clients typically demand tight timelines, but Donaldson and Shubin don't complain. "We occasionally wish we had more time, but time pressure just pushes us to distill the real essence of what they want to accomplish," Donaldson says. "They don't have time to hear about our personal design fantasies, so we just skip all that. We quickly get to the heart of what they want to do."

Kira L. Gould



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Golden moment AIA President Ronald L. Skaggs, FAIA, placed the 2000 Gold Medal around the neck of Ricardo Legorreta, HON. FAIA, at February's Accent on Architecture gala in Washington, D.C. Legorreta told the crowd he has worked hard to improve the world's perception of the architecture of his native Mexico, which he feels is starting to gain the recognition it merits. "I have devoted all of my enthusiasm and passion to the profession of architecture," he added.

The short of it The New York Public Library's search for an architect to design a new midtown Manhattan branch has narrowed to a shortlist of Smith-Miller Hawkinson in association with Shepley Bulfinch Richardson and Abbott, Gwathmey Siegel, and Hardy Holzman Pfeiffer. The library is



Ricardo Legorreta, HON. FAIA, lives it up with Ronald Skaggs, FAIA.

expected to choose in March for the project, which is estimated to cost $40 million to $50 million. Meanwhile, the University of New Mexico has winnowed its search for a designer of its new School of Architecture and Planning to four finalists: Leers Weinzapfel Architects of Boston, in association with SMPC of Albuquerque; Barton Myers Associates of Beverly Hills, in association with Ellis/Browning of Santa Fe; Antoine Predock of Albuquerque; and Rob Wellington Quigley Architecture of San Diego, in association with Garrett Smith Architects of Albuquerque. Final design proposals will be presented April 6.

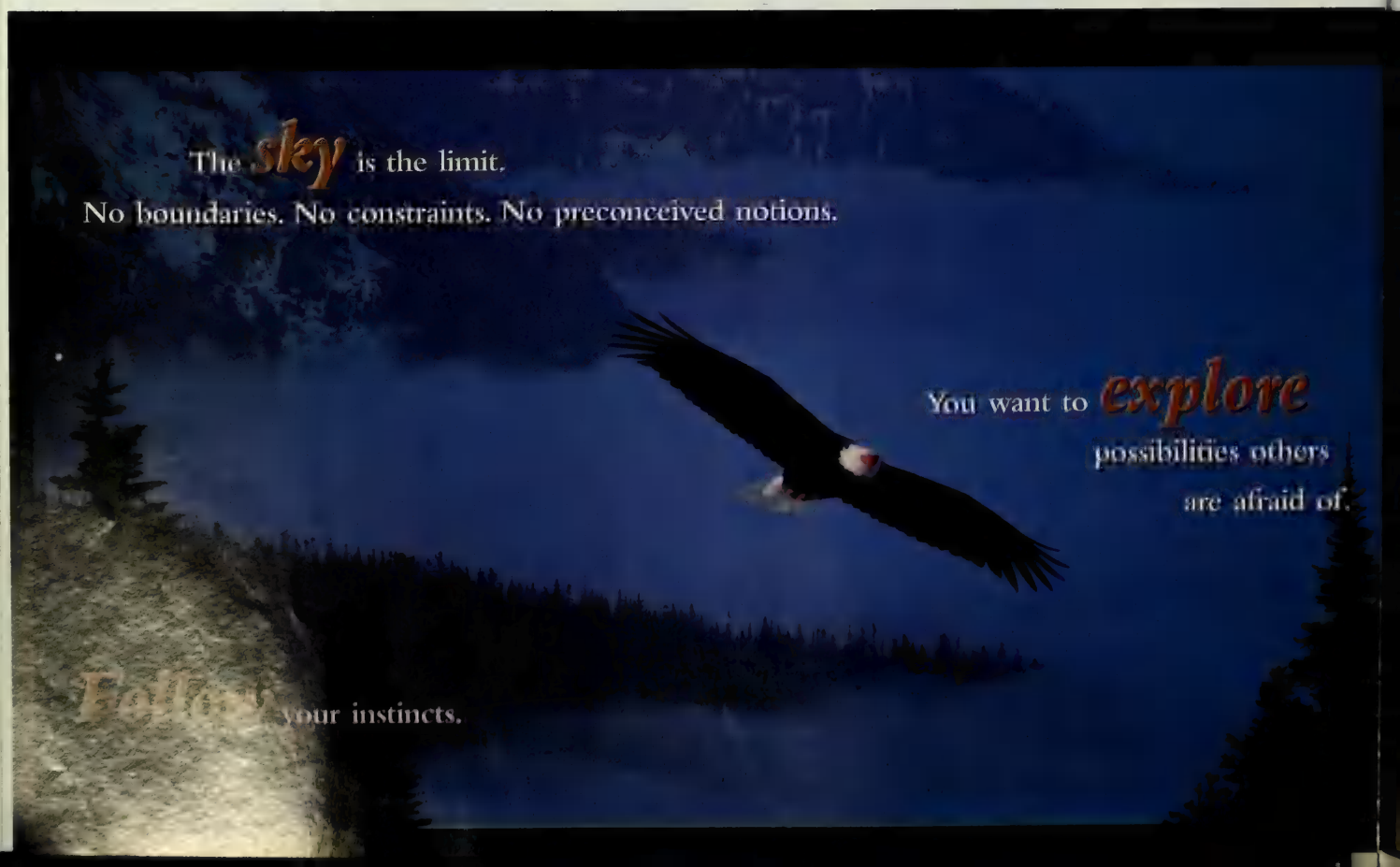
Eli expansion Yale University plans to invest $500 million in science and engineering facilities, including the construction of five new buildings and the renovation of several old ones—apparently one of the largest building plans ever undertaken by a university. The new buildings, to be completed in six to eight years, will include facilities for chemical, biological, and environmental research as well as for engineering and the School of Forestry and Environmental Studies.

Starck on Target French designer Philippe Starck has joined Michael Graves, FAIA, in creating household merchandise for Target Stores. While no product categories have been specified, Starck will develop the line through this year with an eye on launching a collection in 2001. Meanwhile, Graves will continue to expand his product offerings this year.

Scaffolding saga Speaking of Graves, the scaffolding he designed to surround the Washington Monument during its recent rehabilitation—and which garnered acclaim for its aesthetics as well as its function—is being dismantled, though perhaps not for good. Target (which was a major funder of the scaffolding project) and the Minneapolis Institute of the Arts are considering rebuilding about half of it, creating a sculptural obelisk in the Twin Cities.

Maltzen for the MOMA The Museum of Modern Art in New York City has chosen Michael Maltzen Architects of Los Angeles to design its temporary arts center in Queens. Maltzen, who formerly worked with Frank Gehry, FAIA, will transform part of an old industrial warehouse—the former Swingline stapler building—into gallery space to display temporary exhibitions and portions

PHOTOGRAPHY: © AIA



News Briefs

of the museum's permanent collection while work proceeds on a $650 million expansion in Manhattan. Cooper Robertson and Partners of New York is developing a plan for the entire building, which would eventually include storage and offices as well as exhibitions.

The look of Louisiana The New Orleans firm Eskew+ has been chosen to design the new Louisiana State Museum in Baton Rouge, to be constructed on the Capitol Park Campus, adjacent to the state capitol and the Huey P. Long Public Gardens. The 100,000-square-foot structure will showcase a comprehensive history of Louisiana. It is scheduled for completion in fall 2003, to coincide with the bicentennial of the Louisiana Purchase.

Casino craze Mohegan Sun is rolling the dice on a second casino. The $800 million Project Sunburst, said to be the largest private development on the East Coast, is being built next to the company's first casino, in Uncasville, Conn. The exteriors, including a 34-story hotel, were designed by Kohn Pedersen Fox, while the interiors are by New York City's Rockwell Group. The 4 million-square-foot addition also includes restaurants, spas, and a 10,000-seat arena, and is slated to open in 2002.

New life for a library The city of Oakland, Calif., is renovating its former main library, a National Historic Landmark, and transforming it into the African American Museum and Library at Oakland. The Bay Area-based Michael Willis Architects is leading a team that will reinforce the turn-of-the-century building, upgrade infrastructure, and create exhibit spaces.

Caring for Kosovo The Council of Europe and the European Commission are preparing a survey of damage to and destruction of the architectural and archaeological heritage of Kosovo. Once the survey is complete, experts will set up local teams, representing all demographics in Kosovo, to draw up proposals for preservation and rehabilitation. Since the arrival last June of the NATO-led peacekeeping force, protection of cultural monuments has been limited to Serbian Orthodox churches; nevertheless, more than 50 churches in Kosovo have been damaged by vandalism since then.



SmithGroup's design for the BART station in East Dublin/Pleasanton, Calif.

Beautifying BART The San Francisco region's Bay Area Rapid Transit system has begun a series of expansions to move closer to fulfilling an original vision of encircling the bay while expanding to new and distant communities beyond. Alongside expanded reach, design quality is taking priority; for example, San Francisco's SmithGroup has designed an unusual new BART station in East Dublin/Pleasanton with a long, snakelike appearance. The station is meant to act as a billboard for the new look of BART.

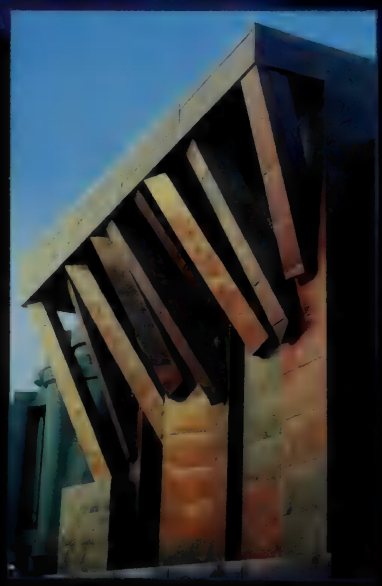
He's with Steuben Ralph Appelbaum does more than museums. Known for museum interiors such as the new Rose Center in New York, Appelbaum has designed his first retail space, a store for Steuben crystal that will open in Manhattan in May 2000.

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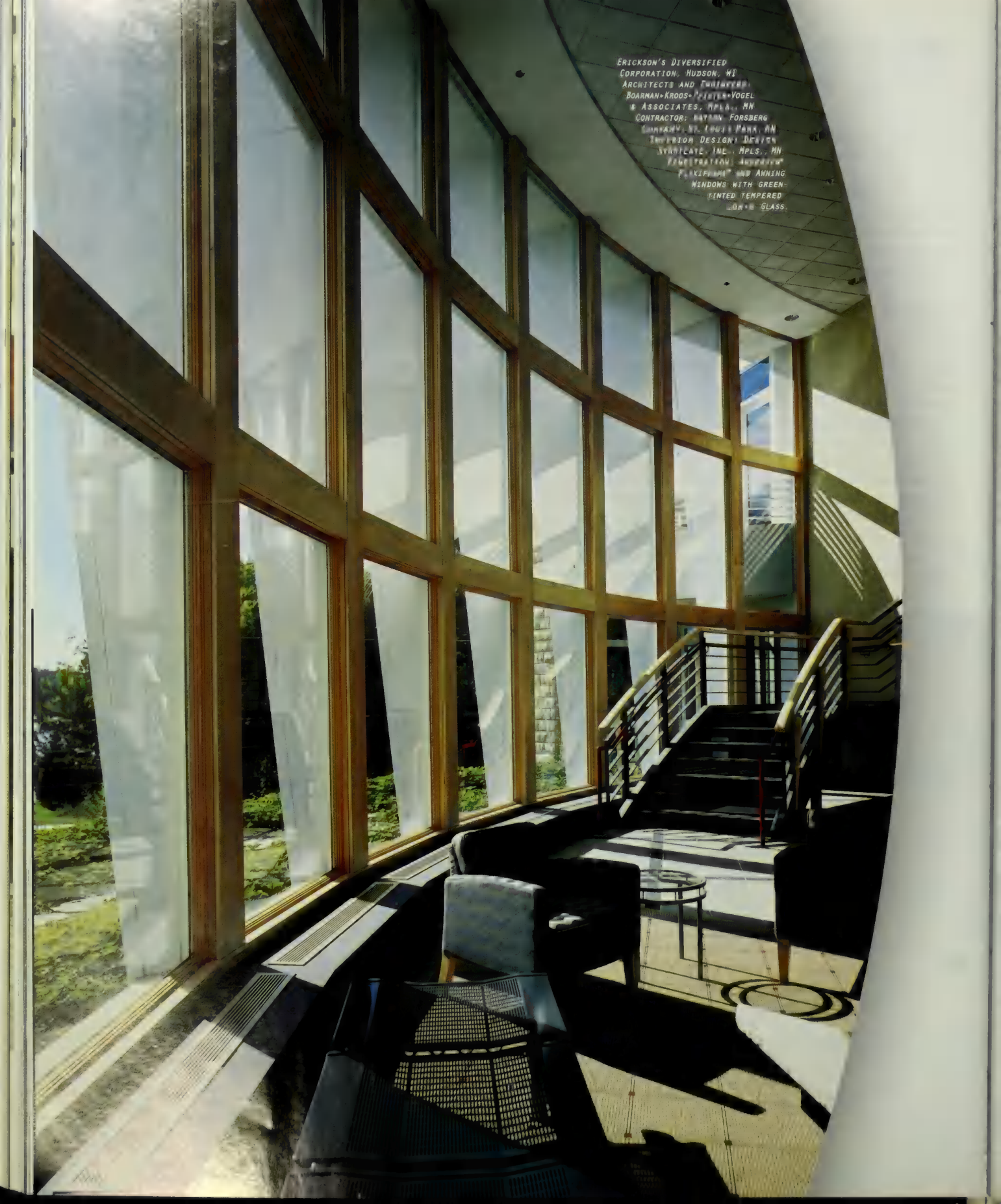
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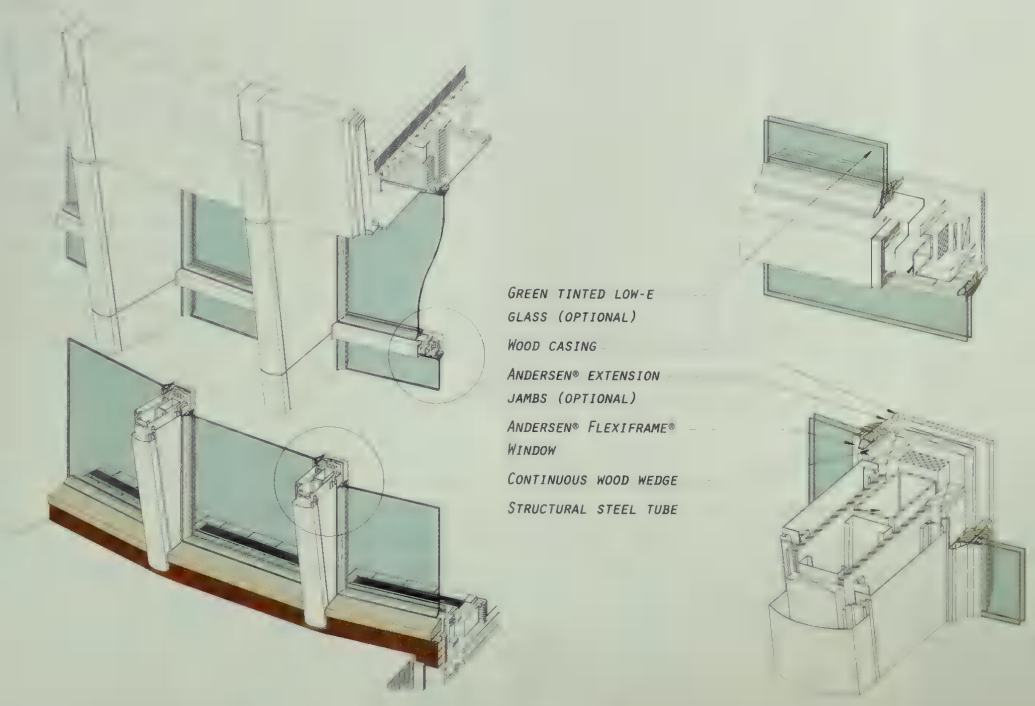
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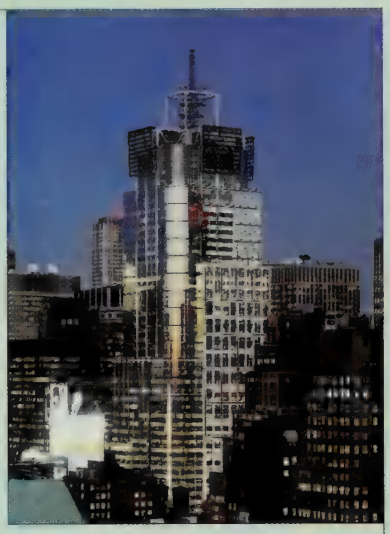
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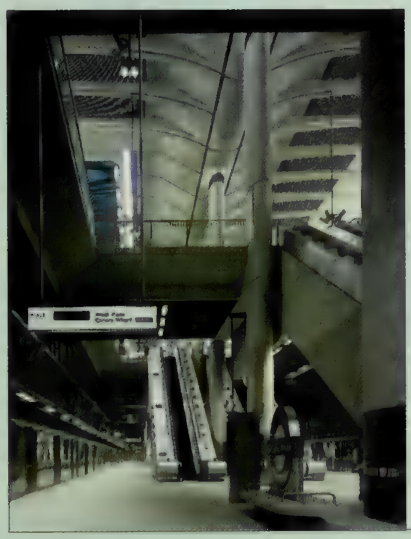
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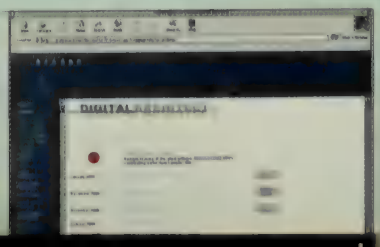
To the **Jubilee Line Stations (March BTS):** Bermondsey - Ian Ritchie; Canary Wharf - Foster & Partners; Canada Water - Jubilee Architects and N. Greenwich - Alsop & Stormer.

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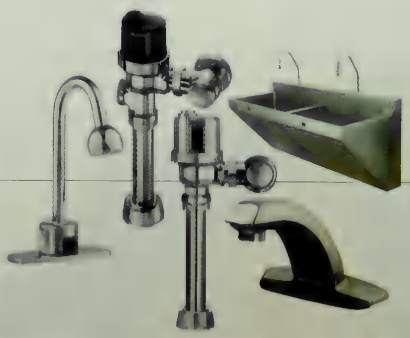


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CIRCLE 26 ON INQUIRY CARD

Brazil may be poised for an architectural comeback

Correspondent's File

By Clifford A. Pearson

The time is right for the architectural world to take another look at Brazil. For the past few decades, the largest country in Latin America barely registered a blip on the radar screens of architects and design professionals interested in the international scene. Economic, political, and social troubles in the 1970s and '80s created the impression that Brazil was a country without much to offer the rest of the world.

Recent changes in Brazil and abroad, though, should help put the country back on the design map. In the U.S. and Europe, midcentury modernism is all the rage with collectors snatching up Eames chairs and culture mavens expressing renewed appreciation for the works of the 1950s. This was also the era when Brazil made its biggest splash in the international design press with celebrities such as architect Oscar Niemeyer, planner Lúcio Costa, and landscape architect Roberto Burle Marx, and the building of a radically modern new capital, Brasilia.

As Brasilia celebrates its 40th anniversary this year, many eyes are once again turning to the country that took a Corbusian vision of the future and made it a reality. The festivities began with the Fourth International Bienal of Architecture in São Paulo, which ran from November 20, 1999, through January 25, 2000, and showed why Brazil still matters. By looking both backward and forward, it bridged the gap between Brazil's architectural coming of age and today.

A highlight of the Bienal was the display of wonderful black-and-white photographs from the famous "Brazil Builds" exhibition presented at New York's Museum of Modern Art in 1943. The prints capture the bold optimism that swept through Brazil four and five decades ago. While that era's faith in modern design's ability to shape a better future seems naive to us today, it is a bracing reminder of how much power a sharply drawn architectural vision can have—even in a country as large and diverse as Brazil.

Displays of the work of Paulo Mendes da Rocha, João Filgueiras Lima (usually known by his nickname, Lelé), and other leading architects of the past few decades show how Brazil's legacy of Modernism has been updated and reinterpreted since the 1950s.

Mendes da Rocha and Lelé in particular are living links to the architectural flowering of the 1950s. In recent years, the work of both these architects has become more sensuous—even lyrical—while losing none of its muscular expression. Good examples from the 1990s of this more plastic, less uptight modernism are Lelé's wavy-roofed health centers in Bahia and Mendes da Rocha's sculpture gallery in São Paulo, which draws visitors under and around a concrete pavilion. At his Forma store also in São Paulo, Mendes da Rocha again creates a walk-through experience, this time by raising an elegantly detailed glass-and-steel box one story above the ground.

The Bienal also offered a look at the future with an extensive exhibit of works by emerging Latin American designers. On display was a generation of architects exploring new paths and absorbing a new set of influences. Underlying nearly all of these approaches is a solid foundation in modernism. The historicizing tendencies of Postmodern design, which were so popular in the U.S. in the 1980s, are nowhere to be found. Work by architects such as Marcelo Aflalo, Valentim César Bigeschi, Brunete Fraccaroli, Marcio Gifford, Marcelo Barbosa, Jupira Corbucci, Angelo Bucci, and José Oswaldo Vilela demonstrate Brazilian architects' skill at manipulating the vocabulary of Modernism to create elegant places for habitation, work, display, and study.



A lakeside clinic in Brasilia (top) is one of many facilities Lelé has designed for the SARAH health network throughout the country. A store in São Paulo by Mendes da Rocha combines a simple plan with elegant detailing (above).

Reinventing São Paulo

With 17 million residents, São Paulo is the world's third largest city (behind Tokyo and Mexico City) and sprawls over 3,100 square miles. Although it has boutique-lined shop-







At Lina Bo Bardi's SESC Pompéia (above), a new concrete tower contains sports facilities, while old factory buildings house cultural spaces. In Brasilia the Congress buildings (left) are still powerful icons. Rio's slums (below) cling to steep slopes.

ping areas and carefully planned garden communities such as the Jardim Paulista near its historic center, the city is experiencing a kind of cancerous growth around its periphery. The business capital of Brazil, São Paulo continues to draw large numbers of people from less vibrant parts of the country, many of whom end up in the makeshift megaslums that ring the city.

São Paulo, though, has a knack for reinvention that can be seen in some of its grittier districts. With varying degrees of success, industrial neighborhoods have used architecture to treat urban ills. A few years ago, for example, the Barra Funda area received a large injection of monumental Modernism in the form of government and cultural buildings designed by the old master Niemeyer. Cartoon descendants of his more sophisticated earlier work, these badly constructed concrete-and-dark-glass structures were originally intended to house a Latin American parliament. But when the international organization failed to become a reality, the complex was put to use as an odd mix of offices and museums and called the Latin American Memorial, which aptly captures the lifeless character of the place.

A more successful model of urban renewal is the SESC Pompéia, a recreation and cultural complex inhabiting an old factory in the Lapa neighborhood. Designed by the Italian-born architect Lina Bo Bardi who died in 1992, the labor-union-run project is a vibrant mix of converted old spaces and gutsy new concrete structures.

In Rio de Janeiro, Mayor Luiz Paulo Fernandez Conde (see sidebar) has been using design as an important tool in [illegible] stating the city's [illegible] back a [illegible] that made tourists think twice about visiting, Mayor Conde—who is an architect and ran a large design firm before getting into politics—has initiated a series of projects aimed at the public realm. Ranging from large-scale redevelopments of industrial sites on the waterfront and renovations of historic buildings in the Centro district to a program of imaginative street furniture for various neighborhoods, the projects are beginning to make a difference. Streets are cleaner and business is picking up after the devaluation of the Brazilian currency a year ago. In time for the real turn of the millennium at the end of 2000, the city will unveil new restroom pavilions and sexy teardrop-shaped lighting fixtures designed by Indio da Costa Arquitectura e Design for Copacabana Beach. Mayor Conde is also trying to weave Rio's infamous *favelas* into the fabric of the city by extending essential services such as street paving and utility hook-ups to these sprawling slums.

BRASILIA IS BECOMING MORE OF A REAL PLACE AND LESS OF A SHOWPLACE.

Brasilia matures

Just as children often surprise us as they grow up, Brasilia at 40 has started to become something different from the utopian city on architectural steroids it once was. Streets still have numbers instead of names, residential areas are still called "superquadra" rather than neighborhoods, and the lawns between Niemeyer's futuristic government buildings still impress the eye while exhausting the feet. But the place is mellowing with age. Vines now soften the hard edges of concrete walls, flowering trees add scale and color to monumental vistas, and a veil of time imparts a welcome sense of history.

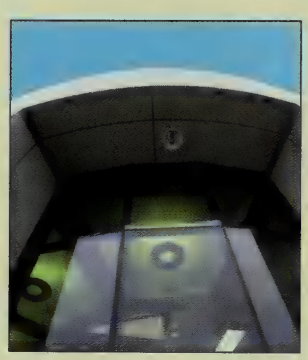
Blessed with a more temperate climate than its big sisters on the coast and a more manageable population of just 1.5 million, Brasilia is increasingly popular among young professionals as a place to live and raise a family. When the federal government moved the capital in 1960, it had to double the salaries of civil servants to entice them to relocate. Now Brasilia's low crime rate (compared to Rio's or São Paulo's), its easy commutes, and laid-back pace are enough to attract people. Indeed, the combination of a car-focused culture and outdoor living gives this piece of South America the feel of southern California.

Much of the new architecture in Brasilia, including recent projects by Niemeyer himself, doesn't match the quality of the original buildings. But the addition of less distinctive buildings is making Brasilia feel like a real place, not just a showplace. Enough of the founding vision and heroic design remain intact for this city to remain a powerful magnet for lovers of modern architecture. Even some of the city's design failures have acquired an odd charm, such as Niemeyer's bombastic national cathedral with its leaky stained-glass roof and the rectangular toilet seat in the Americas Hotel, which works beautifully with the rest of the bathroom but considerably less well with the human body. But Brazil and its capital are such captivating places you're willing to forgive a great deal just to soak in their spirit. ■



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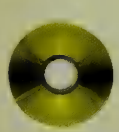
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CIRCLE 27 ON INQUIRY CARD



INTERVIEW

"I'm still an architect. I just don't draw anymore," says Luiz Paulo Conde, 65, who was elected mayor of Rio de Janeiro three years ago after practicing architecture for four decades. "As mayor, I make architectural decisions all the time."

Indeed, Conde has inaugurated two major programs aimed at upgrading the city's physical environment: Rio Cidade (which focuses on modernization projects such as redeveloping old piers and adding new underground parking structures) and Favela Bairro (which turns slums into neighborhoods).

Conde says the city itself, rather than individual building projects, should be the true focus of architects' energies. He mentions Oriol Bohigas, the architect who orchestrated the transformation of Barcelona leading up to and after the 1992 Summer Olympics, as a role model.

Born and raised in Rio, Conde understands that the city's diverse neighborhoods are its essential building blocks. "One of the failures of Modernism was treating the city all as one place. Each neighborhood has its own personality. People identify with their neighborhood." This is especially true in Rio, a city of 5.5 million people where rooting for the local soccer club is an activity that cements social relationships. Even the mayor, in his official two-page biography, notes which soccer team he pulls for (he's a Fluminense fan).

While practicing architecture, Conde served two terms as the president of the Rio chapter of the Brazilian Institute of Architects and was also the director of the department of architecture and urbanism at the Federal University of Brazil in Rio. In 1993 he was appointed secretary of urbanism for the city of Rio, the job that brought him into municipal politics.

Conde is particularly proud of his Favela Bairro program, which addresses the needs of the 1.2 million people living in Rio's extensive slums. In São Paulo, *favelas* form a great ring around the city, but in Rio they cling to steep mountainsides that rise from some of the best locations in town. So in Rio it is harder to ignore the poor, whose makeshift homes look down on the city's wealthy neighborhoods and famous beaches.

The Favela Bairro program engages residents in discussions to identify their most important needs. Typical projects include paving streets and building concrete stairs to make these hillside neighborhoods accessible during all kinds of weather, providing sewage and water lines, and building community centers and schools. The city does not build much housing in these neighborhoods, but provides low-interest loans and advice so residents can build or improve their own homes.

"Everyone told me, 'it's impossible to work in the *favelas*,'" recalls Conde. "So we started with small *favelas* and won some small victories." After three years, "the program has touched 400,000 people," reports Conde. "Over the next four years, we hope to touch another 500,000 people." The goal is to eventually help all of the 1.2 million people living in the city's favelas. ■

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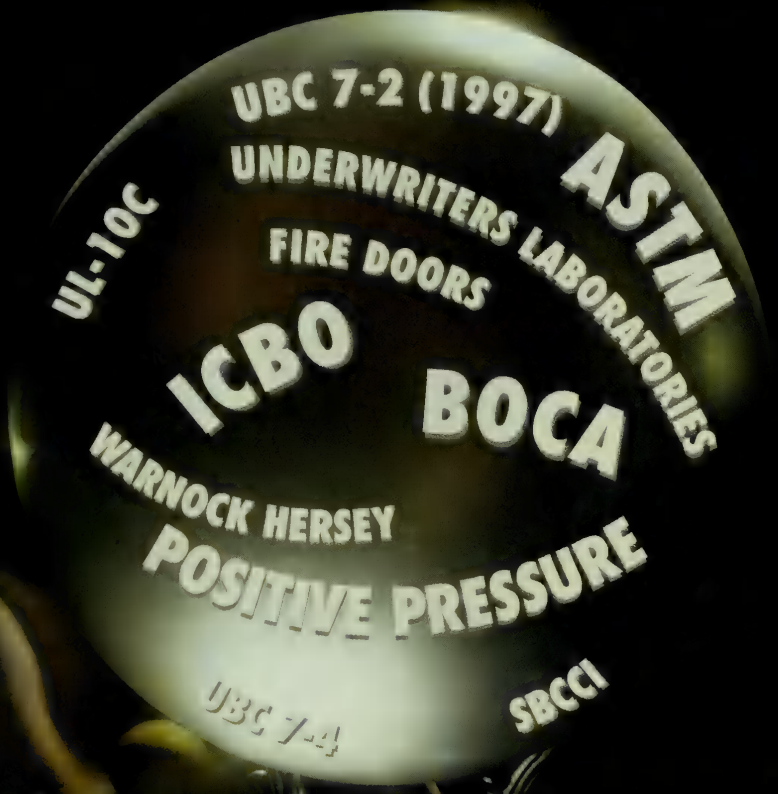


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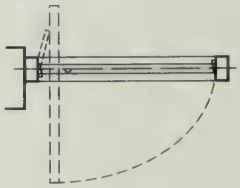


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Recession proofing: When the boom busts, how will your firm fare?

Practice Matters

By Elizabeth Harrison Kubany

A sign recently spotted in a New York shop window reads, "Recession Special: For the one that was . . . and the one to come." After nine years of economic growth—the longest peacetime expansion in U.S. history—some Americans are beginning to wonder how much longer the economy can sustain the boom.

"Everyone I speak to is waiting for the shoe to drop," says Kermit Baker, chief economist for the AIA. "While there really aren't any signs that anything is wrong—billings are heavy, and inquiries for new work have continued to grow—below the surface, there is nagging concern." As Bob Hillier, FAIA, of the Princeton, N.J.-based Hillier Group says, "I can't see the end of the boom, but I know it is there."

"I've heard a number, which has never been refuted or substantiated, that 25 percent of all architecture firms went out of business during the last downturn," Baker continues. "I think firms today are well aware of the implications of an economic downturn and are looking over their shoulders for signs of weakness."

But there is no reason to sit around and wait for the worst. There are ways to minimize the impact of a downturn, whenever it might appear. We spoke to practitioners (many of whom have been through several economic cycles) to find out how they are preparing for a potential dip in the economy. Whether or not you are skeptical about the future of the economy, the following is sound advice that all firms should follow, no matter how good or bad times are.

Diversify

There are two models of business diversity for architecture firms. First, those firms that do not consider themselves strictly design firms—those willing to try nontraditional business models—can expand the base of services they offer. According to Baker, "standard design services are as volatile as anything you can do," because they are tied to construction cycles. By adding services like facilities management, firms can take advantage of a building's whole life cycle and expand their fee base.

More design-oriented firms can achieve a different kind of diversity. Herb McLaughlin, AIA, of KMD in San Francisco says, "Our firm has always been very diverse in terms of both the building types we do and the geographical locations of those buildings. This approach has helped us maintain our size over the years. Besides being economically sound, this model of diversity is also an interesting way to practice."

Hire creatively

Sam Spata, AIA, chief administrative officer of HOK New York, has noticed a greater reliance on part-time and freelance staff since the last recession. Ten percent of his staff consists of temporary workers who may eventually become full-time team members. "When these people come and go, the morale of the rest of the staff is not impacted as it is when full-time workers have to be let go," he says. As a general rule of thumb, HOK never allows labor costs to exceed 50 percent of fees.

Labor is every firm's single largest expense, so it is often where people make cuts first. For example, Timothy S. Reedy, Hardy Holzman Pfeiffer Associates' administrative director, says, "At this point, we are not replacing those people we lose because of attrition. The only way that we can really plan for the end of this boom is by keeping tight control on the number of employees we have, particularly those who contribute to overhead," such as marketing, public relations, administrative, and other employees with nonbillable hours.

Don't stop selling

As Kenneth Drucker, AIA, of HOK New York observes, "Even in this market—particularly in this market—firms can never stop marketing themselves." In these flush times, when architects are having to turn away work because they are too busy, it might be hard to understand the need to step up business-development activities. But laying the groundwork for new projects, particularly in those sectors that may not be indelibly affected by the economy, such as education or health care, can help sustain a firm through bad times.

Run a tight ship

Architecture is simply not a profession that allows for a lot of fat. Fee structures are far too tight, and technology, personnel, marketing, and research costs are too high. No matter how flush the times, it always pays to run your business frugally. Since the last recession, Spata has noticed a trend toward fiscal conservatism. "I don't know of a firm that hasn't operated differently for the past 10 years. Overall, architects are much more cautious. If there is a slowdown, I don't think we will see as huge a correction as we saw eight years ago. People were traumatized by the early 1990s. In discussions with my peers, I have found that people are running a tighter ship—not allowing overhead to grow disproportionately in relation to fees—than they were in the late 1980s."

The good news

Despite some general wariness on the part of architects, Hillier thinks the profession might be in for a surprise. "This economy might have long legs because the largest sector of the population—the baby boomers—has more disposable income than ever before. They want to travel, be entertained, relax, learn. This leads to hotel, airport, golf-course, restaurant, casino, and theater construction."

He also notes that, even if there is a downturn, there will be at least one happy result: "The downside of this go-go economy is we have no time to ponder design problems. Everything is going so fast that sometimes we have to resort to a rote answer from the design standpoint. I don't feel we are advancing the art one iota. The best architecture is created during recessions." ■


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CIRCLE 31 ON INQUIRY CARD

What good are critics? We need them to excite and provoke the public.

Critique

By Richard Meier, FAIA

There is not an architect I know who does not read his or her own press—contrary to what they may profess. My personal recommendation is to read it and forget it. A negative article can put me in a bad mood for an hour or so, but it has never affected my work in any meaningful way. During the height of Postmodernism in the 1980s, and the concomitant criticism of Modernism and my work, critical discussion only served to strengthen the resolve of my convictions. Architectural criticism is not for the benefit of the designer being discussed but for the public at large—professional and lay.

Certainly, Herbert Muschamp's article last December 19 in the *New York Times*, "Trump, His Gilded Taste, and Me," addressed this issue, including the role of architectural criticism, and was more stimulating than any of Mr. Trump's buildings. From Muschamp's point of view, "criticism is partly an art of complicating simple things. And beauty, historically, has topped the list of things critics like to worry about." Too few architectural critics are currently preoccupied with how architecture forms, provokes, and enhances the culture of our cities.

Richard Meier, FAIA, is a past recipient of the Pritzker Prize and the Gold Medals of the AIA and the Royal Institute of British Architects. His current projects include the Church of the Year 2000 in Rome and courthouses to be completed this year in Islip, N.Y., and Phoenix.

Usually, I find the criticism of architects whose work I respect and admire to be of benefit in thinking about my own work. Because I travel a lot, there is ample opportunity to visit the recently completed work of my peers. The experience of visiting a building always brings a unique understanding that is not possible through reading or looking at photographs. For that reason I try to encourage students and younger architects to visit and look carefully at buildings. One of the roles of good critics is to encourage this action by creating an atmosphere of excitement and/or controversy about an individual building. Luckily, however, they do not have the powers of theater critics who can close a show after opening night.

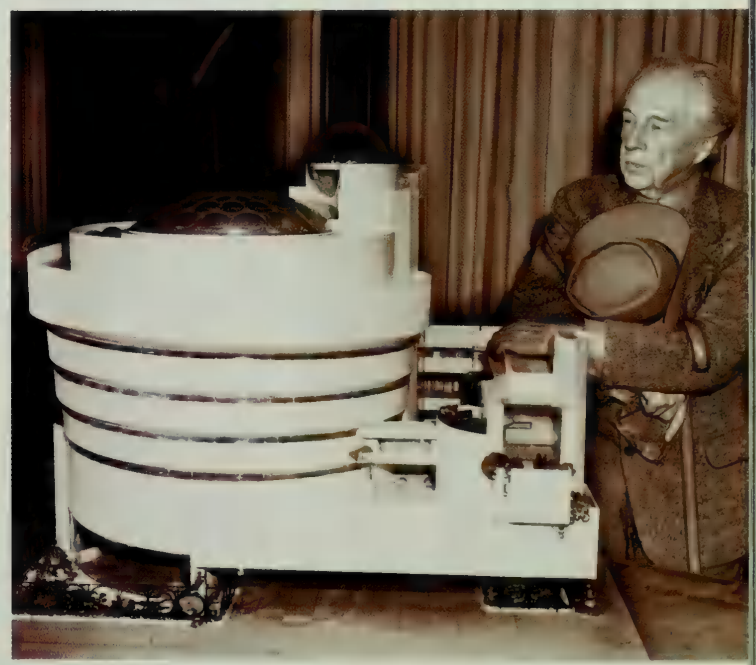
Role playing

I have found myself criticized for not writing more about my own intentions for a design. This continues to surprise me, as I do not feel that it is the role or a requirement of an architect to explain his own work. Perhaps it is naive to say that the work should stand for itself but I believe it should. It would have little meaning for me to tell people what I was trying to achieve in a building if they could not reach the same conclusions on their own. It is the role of the critic and the historian, not the architect, to codify and interpret the work.

The strongest works of architecture and art are those that can stand up to multiple readings. The most meaningful buildings of the past are those that have resonance for current issues, not those that simply have historical value. These works, which force us to reconsider our preconceived notion of a particular building type or space, are the ones that will stand the test of time. The buildings, for instance, that traditionally receive the AIA's Twenty-Five Year Award—such as the Seagram Building or the Guggenheim Museum in New York—were not only respected but debated when they were first completed. My Smith House of 1967 received an Honor Award from the AIA in 1968 and this year's Twenty-Five Year Award, but it was also the subject of much discussion and dissension.

What's the point?

The true benefit of much architectural criticism lies in its ability to promote buildings as works of architecture, rather than as mere constructions, and ultimately to elevate the level of popular taste. A critic identifies the qualities that make a building a work of architecture, a distinction that should be based on intrinsic quality and timely significance. The value of good criticism (and by that I do not necessarily mean positive criticism) is that it excites and



Even Frank Lloyd Wright had to endure extensive criticism and dissension when his Guggenheim Museum design was unveiled (above, artist and model in 1945).

provokes people to go and look at the work. The most important role of architectural criticism is to create a receptive audience for good architecture, which is why the quality of criticism should be important to all of us who practice architecture, as well as to those concerned with the quality of our built environment.

CRITICISM SHOULD CREATE A RECEPTIVE AUDIENCE FOR GOOD ARCHITECTURE.

In the past there were more clearly defined differences among publications featuring architectural criticism. Professional journals, such as this one, tended to merely present current work by leading practitioners and were prey to the vagaries of the marketplace and advertisers. While still accountable to the bottom line, professional journals in recent years have moved away from a vanity press role to a more analytical and critical presentation of works. It is a move in the right direction but one that could go even farther. Critical journals such as the now-defunct *Oppositions* presented theoretical and historical views and contributed to the discourse about contemporary architecture, often in compelling and challenging ways. Serious debate continues sporadically in various university publications from Columbia, Harvard, Yale, and other universities, and though the discussion can tend to be too esoteric or academic, its role for practitioners should not be minimized: It is in the architecture schools and the academies that many of the current directions in architecture are formulated and argued and it behooves us all to remain involved with the academic aspect of the profession.

It is surprising and disturbing that in the U.S. there are only two major architectural journals, ARCHITECTURAL RECORD and *Architecture*, while in Europe there are dozens. It would seem that there is more than enough good work being produced today to fill the pages of at least one more architecture publication in this country. Or is the professional audience lacking? Assuming the audience exists, I think there is also a demand for presenting more buildings in the project stage. At most, there is meaningful coverage of only one project per issue. More often, unbuilt work is represented by a model photograph or two in the news. As this is the stage of a project's development where there is room for constructive criticism, it would make sense to expand this type of coverage.

Newspapers are another outlet for architectural criticism, and newspaper criticism needs the strongest shot of adrenaline. Most American newspapers (with the exception of the *New York Times*, which is read as much outside New York as inside) tend to do little more than report on the latest new local building, and they address themselves to the lowest common denominator. Many newspapers in major cities do not even have a full-time architecture critic and don't give regular space for architecture articles. Even the venerable Sunday edition of the *Times* does not have a predictable, weekly architecture review.

If we as architects wish to have our work better respected and understood by the public, we should work toward seeing it more regularly represented in the popular press and given the same weight as other cultural endeavors. It is only by making architecture a topic of popular discussion and debate that we as a profession will be able to fully engage the much-needed support of policy makers and the business community in urban design and development issues. ■

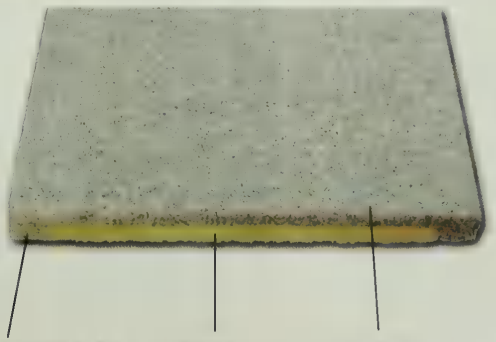
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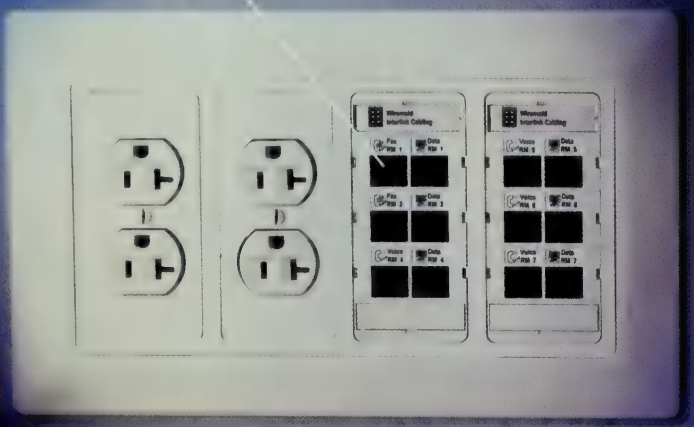
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Snapshot



By Ingrid Whitehead

Popsicle-stick facade sweetens a simple cube

When architects Carlo Baumschlager and Dietmar Eberle set out to design a building for the BTV Bank in the small Austrian village of Wolfurt, they had to grapple with a unique problem. The client wanted a modern building that would accommodate the bank on the ground level and have three other floors for undetermined purposes.



Could be offices, could be residential, could be retail, said the client. With no program and no user to answer questions, Baumschlager & Eberle elected to design the building in what has become their trademark style—a simple cube with a facade structured to look more complex and less practical than it actually is.

The building is four floors contained in a glass box, with the facade attached to concrete balconies two feet from the glass and a square concrete appendage that houses the elevator. Movable wooden panels make up the popsicle-stick



Horizontally movable wooden slats provide a flexible facade (above). The wooden lattice is about two feet away from the building's glass exterior (below), giving the building a multilayered face.

face. The panels, made of Austrian larch—a wood indigenous to the area and similar to pine—are attached in sections that move horizontally and wrap the entire building.

"By day it looks like a wooden box with a face that is always moving," says Baumschlager, "but at night, when lit from the inside, the slats disappear, and the box appears only as glass." Light enlivens the interior spaces as well, as shadows made by sun and lattice create intricate patterns on the walls and floors of the building's ground-floor bank, two residential floors, and fourth-floor conference center. The latticed wood serves more than an artistic purpose. It was designed so users can see out, but passersby can't see in—keeping the privacy of the residents sacred.

What wasn't sacred to this project was the usual notion of a European bank. "Lucky for us," says Baumschlager, "our client wanted something modern and flexible, not the usual expensive-looking stone bank." Nontraditional aspects continue into the building's interior spaces, especially on the bank floor, which has an open, living-room atmosphere without the usual teller booths.

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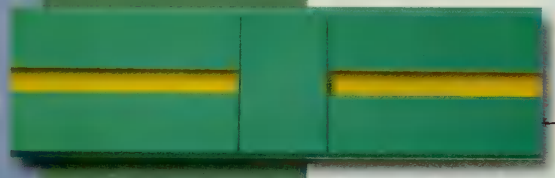
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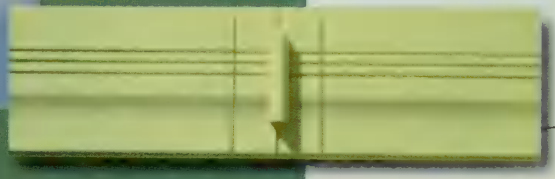




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CIRCLE 37 ON INQUIRY CARD

SOM takes Manhattan

NEW YORK CITY IS TRIUMPHING, WITH SOM LEADING THE ARCHITECTURAL CHARGE. HOW DID ONE FIRM GET SO FAR OUT IN FRONT?

By Elizabeth Harrison Kubany

Not since McKim, Mead & White has one firm had such a profound effect on the built environment of New York City as Skidmore, Owings & Merrill's New York office. Between 1880 and 1920, McKim, Mead & White completed more than 70 projects in the city, including the Brooklyn Museum of Art, the Bowery Savings Bank in Little Italy, the Metropolitan Club on the Upper East Side, Columbia University in Morningside Heights, and Pennsylvania Station (whose demolition in 1964 sparked the preservation movement in this country). This was the Gilded Age—a period of dramatic change when technological advances led to vast infrastructure projects and widespread prosperity gave rise to many of the city's grandest monuments.

Today, a century later, New York City is undergoing a similar transformation with SOM leading the architectural charge. Affluence and optimism have resulted in massive investment in the fabric of the city; several major projects that have been under discussion for decades are now coming to fruition. "There's a golden moment happening in New York City and we're paying attention to it," says partner David Childs, FAIA.

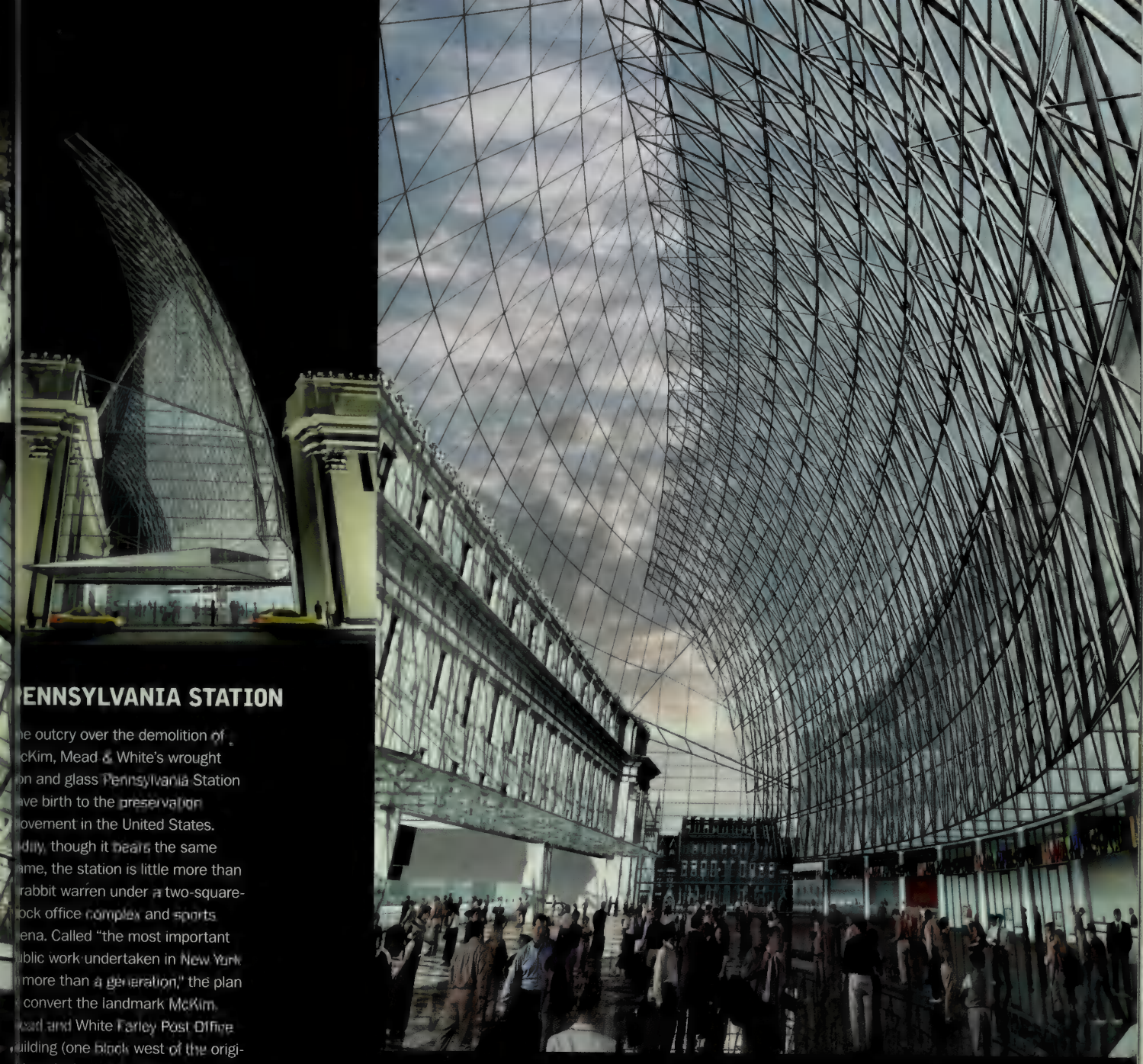
Granted, New York may not be the first place we associate with SOM. The firm was founded in Chicago, has offices in seven cities—including San Francisco, London, Washington, Los Angeles, Hong Kong, and São Paulo—and has completed more than 10,000 projects in more than 50 countries. Some of the firm's most famous buildings, such as the John Hancock Building and Sears Tower (in Chicago), are not in New York. Today, designers like Adrian Smith, FAIA, Larry Oltmanns, AIA, Leigh Breslau, AIA, and Philip Enquist, AIA, in Chicago and Craig Hartman, AIA, Peter Ellis, AIA, and Brian Lee, AIA, in San Francisco are making news with such projects as Jin Mao Tower [January, page 82] in Shanghai, Lisbon's Atlantico Pavilion [August 1999, page 114], 7 South Dearborn [September 1999, page 49] in Chicago, and the Hong Kong Convention Center [June 1998, cover and page 90].

The Bronx is up and the Battery's down

Still, [illegible] AIA, says, "this is a remarkable moment in [illegible] New York office." The office is transforming [illegible] of the most important buildings of this



ALL DRAWINGS COURTESY OF SOM



ENNSYLVANIA STATION

e outcry over the demolition of cKim, Mead & White's wrought n and glass Pennsylvania Station ve birth to the preservation ovement in the United States. dily, though it bears the same me, the station is little more than rabbit warren under a two-square- ock office complex and sports ena. Called "the most important blic work undertaken in New York more than a generation," the plan convert the landmark McKim, ad and White Farley Post Office ilding (one block west of the origi- l station) into the new nnsylvania Station will expand the cilities of the existing station while eating a far grander arrival and parture gate for the city of New . When completed in 2003, nn Station will serve more nas- ngers a year than the three gional airports combined. It will ovide a hub for major transporta- n systems, the city's subway m, and new rail links to nnedy and Newark airports.

1. *Ticketing hall*
2. *Train hall*
3. *Concourse*
4. *Lower concourse*
5. *Platform level*
6. *Media wall*
7. *Post office lobby*
8. *U.S. Postal Service*





1. *One Chase Manhattan Plaza (1961)*
2. *One Liberty Plaza/U.S. Steel (1989)*
3. *Marine Midland Grace Trust Company (now HSBC) (1967)*
4. *Irving Trust Company (now Bank of New York) (1983)*
5. *New York Mercantile Exchange (future)*
6. *450 Lexington Avenue (1991)*
7. *Union Carbide Corporation (now Chase Manhattan Bank) (1961)*
8. *Lever House (1950)*
9. *Pepsico Headquarters (1959)*
10. *9 West 57th Street (1973)*
11. *Palio Restaurant (1986)*
12. *Bertelsmann Inc. (1997)*
13. *Worldwide Plaza (1989)*
14. *Chase Financial Services Center at Metrotech (1993)*
15. *Citicorp at Court Square (1989)*
16. *Tribeca Bridge (1992)*
17. *14th Street & 8th Avenue Subway Station (future)*
18. *Riverside South Master Plan (1991) 59th to 72nd Streets*
19. *Olympic Tower (1976)*
20. *1114 Avenue of the Americas/W. R. Grace Building (1972)*
21. *Library and Museum of the Performing Arts at Lincoln Center (1965)*
22. *St. Luke's/Roosevelt Hospital (1992)*
23. *1301 Avenue of the Americas/Credit Lyonnais (1989)*
24. *Vista International Hotel (1981)*
25. *Columbia University East Campus Master Plan (1990)*
26. *Columbia-Presbyterian Medical Center (1988)*
27. *Manufacturer's Hanover Trust (now Chase Bank) (1954)*
28. *Shearson Lehman American Express (1986)*
29. *875 Third Avenue (1982)*
30. *919 Third Avenue (1989)*
31. *Islamic Cultural Center (1991)*
32. *Manhattan House (1952)*
33. *Pennsylvania Station Redevelopment Project (future)*
34. *New York University Medical Center (1945 to present)*
35. *Mount Sinai Medical Center/Annenberg Pavilion (1974)*
36. *230 Park Avenue (future)*
37. *350 Madison Avenue (future)*
38. *New York Stock Exchange (future)*
39. *Columbus Centre (future)*
40. *Bear Stearns Headquarters (future)*
41. *300 Madison Avenue (future)*
42. *Port Authority Office Building (future)*
43. *Goldman Sachs & Co. (ongoing)*
44. *Random House Headquarters (future)*
45. *Terminal 4 at Kennedy Airport (future)*
46. *Continental Airlines Terminal at Newark International Airport (future)*
47. *Downtown Newark Master Plan (1991)*
48. *New Jersey Performing Arts Center Master Plan (1991)*
49. *Governor's Island (future)*
50. *World's Fair (1939)*
51. *Harlem USA (future)*

Just the tip of the iceberg: SOM has completed almost 400 projects in New York City—including new buildings, renovations, interiors, master plans, and competitions and studies—for hospitals, corporations, cultural institutions, developers, and various government agencies. The map above shows part of this proliferation.



generation, the kind of era-defining projects watched by the world. SOM's list of current New York work includes three of the largest projects on the boards in the city: Columbus Centre, 2 million-square-foot towers that will house the headquarters for Time Warner, a Jazz at Lincoln Center performance hall, retail shops, and condominiums on the prominent and hotly contested site of the existing New York Coliseum; the new Pennsylvania Station—which the *New York Times* called the "most important public work undertaken in New York in more than a generation"—the conversion of McKim, Mead & White's landmark Farley Post Office Building to expand the facilities of the most heavily trafficked transportation hub in the world; and a new 2 million-square-foot trading floor and headquarters building for the New York Stock Exchange, the most powerful symbol of capitalism in America. Together, these three projects will total close to $2 billion in construction.

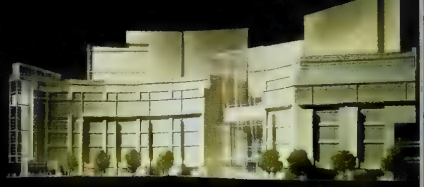
And there are numerous others: the new International Arrivals Building at John F. Kennedy Airport; the Continental Airlines Terminal at Newark Airport; the renovation of the landmark lobby at 230 Park Avenue (formerly known as the Pan Am building), including the intro-

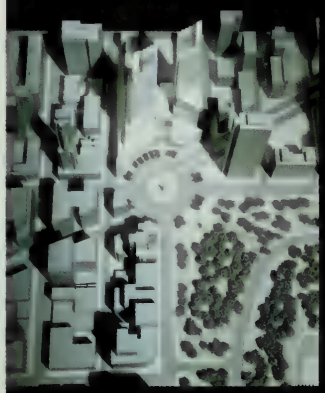
NOT SINCE MCKIM, MEAD & WHITE HAS ONE FIRM HAD SUCH A PROFOUND EFFECT ON THE CITY OF NEW YORK.

duction of pedestrian walkways with simultaneous views of subway tracks below, cars outside, and computerized signage within; 350 Madison Avenue, whose "bold design treats the addition to the tall building as a virtually new building type," according to the *New York Times*' architecture critic Herbert Muschamp; Harlem USA, a new 260,000-square-foot retail/entertainment project at 125th Street and Frederick Douglas Boulevard; a 50-story mixed-used building with a 660,000-square-foot headquarters for Random House and 200,000 square feet of luxury residential space at Broadway and 56th Street; and 383 Madison, a 1 million-square-foot headquarters building for Bear Stearns. In addition, the firm is part of the master plan team for Governor's Island, which partner Marilyn J. Taylor, FAIA, calls "a wonderful plan for 172 irreplaceable acres of historic and open space resources for the city and the region."

New York, New York, it's a helluva town

Creating architecture in New York City is notoriously difficult, so SOM's involvement in such a great scope of work is no small feat. Muschamp recently wrote, "The millennial threshold could be a pivotal moment for architecture in New York . . . there's been a break in the climate of hostility toward architecture that has prevailed here for two decades . . . For a

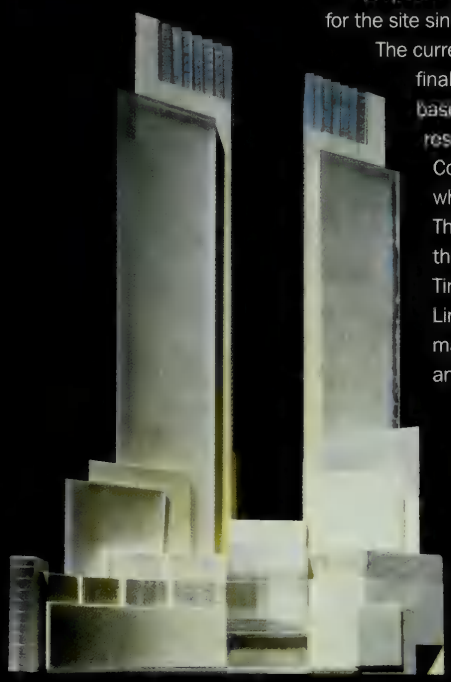




COLUMBUS CENTRE

What should be one of Manhattan's most impressive public spaces, where Broadway meets the southwest corner of Central Park, is in reality only a tangle of traffic punctuated by a few sculptures and some controversial—even ugly—buildings. The largest piece of this puzzle is the site of the hugely unattractive New York Coliseum, which has been discussed for years. SOM has proposed five separate designs for the site since the late 1980s.

The current iteration, awaiting final approval, includes a base, whose sweep responds to the curve of Columbus Circle, above which rise twin towers. The project will house the headquarters for Time Warner, a Jazz at Lincoln Center performance hall, retail shops, and condominiums.









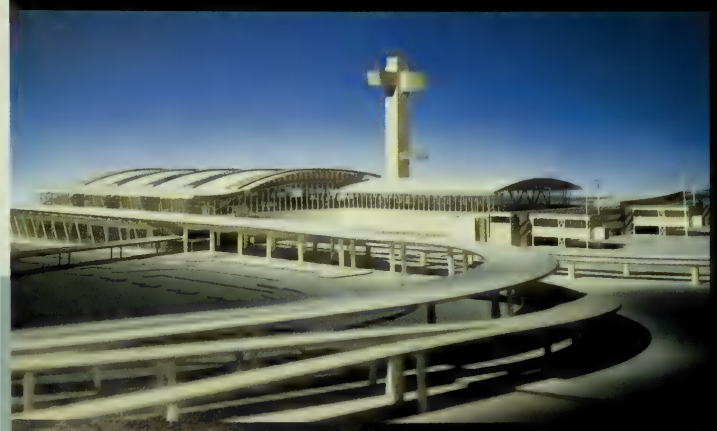
Some of SOM's greatest New York hits:

1. **Lever House, 1950**
2. **Pepsico Headquarters, 1959**
3. **One Chase Manhattan Plaza, 1961**
4. **Marine Midland Grace Trust Company, 1967**
5. **Worldwide Plaza, 1989**
6. **Islamic Cultural Center, 1991**
7. **Tribeca Bridge, 1992**

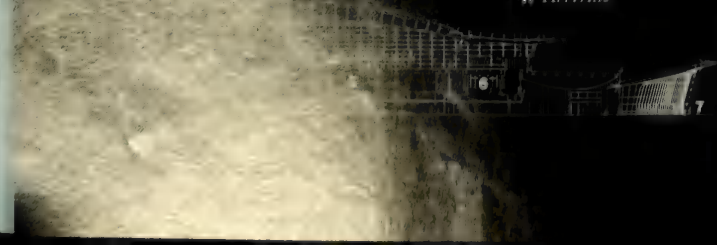
JOHN F. KENNEDY INTERNATIONAL AIRPORT

Upon opening in 1957, the International Arrivals Building, designed by SOM for JFK, has been a modern landmark. Rapid changes in technology and growth in air travel, however, have rendered the building obsolete. The new 1.5 million-square-foot terminal both accommodates the contemporary realities of air travel and allows enough flexibility to facilitate future changes. An open ticketing area allows views out to the airfield for orientation. The privately managed terminal features a 90,000-square-foot retail center located between the concourses and the terminal core. Integral to the design is the incorporation of an intermodal transit link. Marilyn J. Taylor calls this project, "the reason you want to do work at home . . .to create the most pleasant possible arrival into and departure from this city. This is Ellis Island for the 21st Century. We are trying to bring back the thrill of coming to America and arriving at Kennedy Airport."





1. *Immigration*
2. *Retail street*
3. *Baggage claim*
4. *Departures*
5. *Mechanical*
6. *Light rail*
7. *Arrivals*



continued from previous page long time, architecture in this town has been boxed up behind closed doors . . . but out on the street—democracy's great forum for celebration and debate—this ancient art form has long lain dormant."

So, what is the firm's secret? It begins with an understanding and love of cities. In the early 1990s, with the dearth of corporate and commercial work, SOM's partners made a conscious decision to pursue more politically and programmatically complex urban projects because they felt they could have a greater impact that way; that decision also happened to be good for business. Senior partners Taylor and Childs, with their powerful combination of talents—Taylor's with large-scale, complex urban-design issues and Childs' as a designer—head a multidisciplined team, one of the few in New York qualified to address the variety of issues that arise in these large projects.

There's just one thing that's important in Manhattan

Taylor says simply, "I really love the phenomenon of cities." She calls the project at Kennedy Airport "a very personal project, the reason you want to do work at home . . . to create a more pleasant arrival into and departure from this city." Childs reiterates, "while I am primarily focused on the individual buildings, I am overwhelmed by how they fit into the city. And this city is the greatest piece of architecture ever built by mankind anywhere." The firm's younger partners are equally invested in the future of New York. In speaking of his work at 350 Madison, Duffy says he feels a "responsibility to give the city timeless designs like Lever House."

This passion leads to advocacy. Taylor believes that "to affect the city you have to be involved in issues that are broader than your own self-interest. If you're out there, then the opportunities come." Childs feels that architects could have an "enormous influence on the

"TO AFFECT THE CITY, YOU HAVE TO BE INVOLVED IN ISSUES THAT ARE BROADER THAN YOUR SELF-INTEREST," SAYS TAYLOR.

world" by coming together with a collective vision, which is part of their responsibility as a profession. To this end, both partners serve in numerous civic organizations—the New York Building Congress, the Institute for Urban Design, and the New York Municipal Art Society, among others—where ideas are discussed with influential decision makers and where deals are brokered. Founding partner Nathaniel Owings called politics "the fifth dimension of planning, the art of getting things done." This is an aggressive approach, where, rather than waiting for the RFP, Taylor, Childs, and their team try to find a way to get into a project early, "when it is still in the pipeline," says Taylor, before the criteria are set for the role of the architect.

Taylor and Childs use these organizations to advocate large-scale public goals, which is the same approach SOM brings to urban planning. Before planning was really in vogue, Owings predicted, "We are going to reach the point where environment planning will be the supreme thing in this country. Then perhaps we can . . . begin to build a real environment that is a lasting investment rather than something to be destroyed." As a profession, planning has lost some of its clout in recent decades, but SOM and, specifically, Taylor and her team, have used it as an ace. They think about their projects in the broadest terms possible. "Planning at SOM means thinking beyond the boundaries of the project," Taylor explains. "We try to make the object meet the ground, the city, and the neighborhood in the best way. My job is to understand the larger implications of the architecture." For example, in addition to considering how the new Penn Station will fit into the infra-

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CIRCLE 38 ON INQUIRY CARD

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HARLEM USA

For years, development in Harlem was almost unheard of. Recently, retail and entertainment companies have started to realize the potential of the market in this part of the city. Harlem USA, a 260,000-square-foot building housing shops and a multiplex cinema, reflects this change in attitude. Located on a prominent site at the corner of 125th Street and Frederick Douglas Boulevard, the new building is almost entirely glazed to reinforce the activity of the street. This outward-looking approach is more appropriate to New York City than the shopping-mall model, proved unsuccessful in other parts of the city.





350 MADISON

The expansion of 350 Madison includes the addition of a new lobby and 110,000 square feet of office space to this 24-story building. The design treats the existing building as an artifact and intervenes with new piece of architecture, an approach that "transcends the typology of renovation," according to designer Roger Duffy. The lobby, a two-story cube of steel and glass, is inserted into a 25-foot gap between the building and the flagship Brooks Brothers store next door. Lit from below, this lobby radiates to identify the building as a destination at street level. Additional floors of office space are stacked above the existing building and partly cantilevered over the new lobby. A laminated skin of metal and glass wraps around all the new elements, tying them together while distinguishing them from the existing building. The *New York Times* called the design "an innovative approach to building vertically in an already built-up city."

continued from previous page structure of the city, Taylor is hoping for an extension of the Number Seven subway line from Times Square down Eighth Avenue, west to the new station, and then over to the Jacob Javits Convention Center. Eventually, she envisions Penn Station and Grand Central Station as the hubs of a regional railroad which would allow commuters to take a single train directly from, say, Trenton, New Jersey out to Long Island. "This rail corridor has the potential to increase mobility and match people and jobs," she says. At Kennedy Airport, Taylor has designed the new terminal to accommodate a light-rail system that will connect the various terminals and eventually drop passengers at the A subway line. "Our European client couldn't believe there was no train to the plane. We knew with a little bit of earnest advocacy, we had a chance to embrace the air train and put it in the building. We are trying to design conditions that will make it easier, rather than harder, for these connections to be made in the future," she explains. Ultimately, she hopes a direct, one-seat ride from Kennedy to Penn Station will be in place, an improvement she calls "compellingly important to our region if we want to compete in the future."

This approach makes the projects more difficult for the architects; the complexity of the firm's work correlates directly to the time it takes to reap the fruits of the labor. "The projects we have now come from a history of 10 to 20 years," says partner T. J. Gottesdiener, AIA. "We worked hard to develop relationships and a reputation. These projects have the work, background, and sweat equity in them that are paying off now." Childs has completed five separate designs for Columbus Centre since the 1980s and has been talking about Penn Station since the 1970s. Taylor calls the tenacity required to complete these projects "a tolerance for the indeterminate."

The famous places to visit are so many

SOM's New York office is enjoying its second heyday. The first was during the 1950s and 60s, when Gordon Bunshaft defined SOM with his unwavering, uncompromising devotion to the principles of Modernism. Bunshaft's clear, well-conceived buildings simultaneously cemented his reputation as one of the foremost Modernists of his day and changed the fabric of New York City. Lever House on Park Avenue, completed in 1951, won the First Honor Award from the AIA in 1952 (the first of 12 such awards that Bunshaft-designed buildings were to receive) and was called, by ARCHITECTURAL RECORD in 1956, one of the three most influential buildings erected during the previous 100 years. The Manufacturer's Trust Company (1954) on Fifth Avenue, Pepsico Headquarters (1960), Union Carbide Corporation Headquarters (1960), and Chase Manhattan Bank Headquarters (1961) compose a remarkable list of buildings—all impressive for their size, technological development, and sensitive detailing—that Bunshaft completed in Manhattan during these *(continued on page 204)*



The partners of SOM's New York office (left to right): *David M. Childs, FAIA, Carl L. Galioto, AIA, Marilyn J. Taylor, FAIA, Stephen A. Apking, AIA, Peter J. Magill, AIA, Anthony I. Vacchione, AIA, Mustafa K. Abadan, AIA, T. J. Gottesdiener, AIA, Gary P. Haney, AIA, and Roger F. Duffy, AIA*



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Profound forces are reshaping American cities.

Is there a place for architecture?

BY REDEFINING WHAT THEY DO, ARCHITECTS ARE CREATING NEW VISIONS FOR URBAN AMERICA.

By James S. Russell, AIA

Schaumburg, Ill., a freeway-entwined landscape at the far northwestern edge of the Chicago metropolitan area, is a modern-day seat of suburban plenty, where people speak of enormous choice, where home businesses proliferate in McMansions that spread like crabgrass across the prairie. Among the upscale malls pop low-rise towers sporting the names of the region's high-tech employers: Motorola, Lucent Technologies, 3Com. Here marks ground zero of the sprawl debate as it is usually portrayed. The freeways have clotted, the meadows and forests have vanished, and lines of sport utility vehicles pouring into the Costco lot have replaced the storefront-lined Main Street.

The Village of Park Forest, 30 miles South of Chicago's loop, tells a different kind of suburban story. The tidy bungalows and split-levels have changed surprisingly little in the 45 years since William H. Whyte dissected the town's culture of aggressive conformism in the seminal 1956 sociological study, *The Organization Man*. Behind the neatly trimmed lawns today, however, trouble brews. Population and household income have slid; single-income, single parents head more families. The once nearly all-white suburb now trumpets its ethnic diversity, but racial tension, gang activity, and other social ills have appeared.

Park Forest's most obvious sign of decline is its nearly empty shopping center. Once a style-setting composition of low-slung wedges and covered walkways snuggled around an intimate, grassy court [May 1951, page 93], it was all but abandoned in the mid-1980s. Three remodelings have failed. Recently, village manager Janet Muchnik has tried to jump-start the nearly empty center along neotraditional lines by pushing streets through its once pedestrians-only precinct and adding new brick sidewalks and old-fashioned lamps. A year ago, she gamely pointed out a new pizza restaurant, hair salon, and movie theater—the blips of life interrupting the flatline of vacant storefronts.

Park Forest is "flat on its back and won't come back under today's circumstances," says Myron Orfield, a Minnesota state representative and executive director of the Metropolitan Area Research Corporation, Minneapolis. Although it is far from the worst case in the Chicago area, Park Forest is a loser in a Darwinian struggle that is fast developing in suburban America, says Orfield. He is just one of many observers who think the kind of decline and disinvestment that has long plagued older cities is moving into the inner-ring suburbs built in the two decades after World War II.

In policy-making circles there is less debate about whether people are abandoning the homes and businesses in older suburbs than there is about how serious the trend is. Though this is a potentially explosive urban issue, it is just one of several trends affecting American cities, any of which could have profound social and land-use consequences. William Fulton, editor of the *California Planning & Development Report,* sees a fundamental unraveling of the whole system that made the rapid, relatively inexpensive growth of the postwar era possible. And he finds nothing replacing that system. Sprawl has gotten the headlines, but "it is only one of the issues we're dealing with," says Michael Gallis, a Charlotte, N.C.-based architect whose firm uses strategic planning and design to help urban areas position themselves in the emerging global economic framework. He fears that the nation's failure to halt central-city decline and its ignorance of fast-changing globalization will have serious competitive consequences.

Whether or not these prognosticators have properly diagnosed America's urban ills, American cities do seem to be sailing into uncharted waters. Do architects have a place in defining, if not designing, whatever cities become? "No one thinks architects have anything to say about shaping regions and metro areas because we have defined what we do in such a narrow range," asserts Gallis. "At best, we decorate the city with fascinating and interesting objects. At bottom, we are service providers, warehousing people."

Gallis is one of a small but growing number of architects unafraid to get their hands dirty tinkering with the mechanisms that drive what sociologist Harvey Molotch has dubbed the urban "growth machine." And Gallis thinks the profession's future depends on architects' understanding emerging urban issues and engaging themselves more deeply in making the urban environment.

Parasitic suburbs?

If Orfield's research is correct, the most immediate crisis affecting urban America is the abandonment of the older suburbs. This trend could lead to an enormous growth of poor, blighted communities. While largely poor census tracts within Chicago number in the dozens, Orfield counts

...ntion in Philadelphia, "Architects and the Sprawl ... Myron Orfield, Elizabeth Plater-Zyberk, Robert ...ther explore issues raised in this story.



CHICAGOLAND ACCORDING TO MYRON ORFIELD

To the casual observer, one part of the Chicago metro area looks much like another, but urban analyst Myron Orfield maps a landscape of profound sociological difference, with affluence and torrid job growth in the "privileged" northwestern suburbs, stagnation and decline in the older southern suburbs, and a questionable future for emerging middle-class suburbs lacking a substantial commercial tax base.

Commercial development underwrites ample public services.

In struggling Park Forest, "For Rent" signs proliferate.

book *Metropolitics* (Brookings Institution, 1996). Sears, for example, moved its headquarters from its famous Loop tower to favored-sector Hoffman Estates about 10 years ago.

Older communities have few tools with which to resist the "pull" exerted by edge cities, says Orfield. As a result, a vast, land-eating and stunningly inefficient shift of urban settlement outward, is leaving in its wake a trail of urban devastation. (Schools are shuttered in older communities while growing areas struggle to raise money to build new ones, for example.) Worse, he says, such concentrations of wealth and poverty impede overall metro-area growth. To the extent Orfield is correct, political polarization will follow spatial polarization as wealthy "have" communities battle poorer "have nots." Orfield sees significant political realignment as struggling suburbs make common cause with older cities.



America's changed trade landscape . . .

87 troubled suburbs surrounding the city's western and southern edges, stretching in a mind-boggling 65-mile crescent from just south of O'Hare airport through Park Forest into the northeast corner of Indiana (map,page 77). Few have the boarded-up buildings and weed-infested lots long associated with big-city ghettos, but in terms of household poverty, percentage of children that eat government-provided free school lunches (a harbinger of poverty), the trends in these communities are alarming.

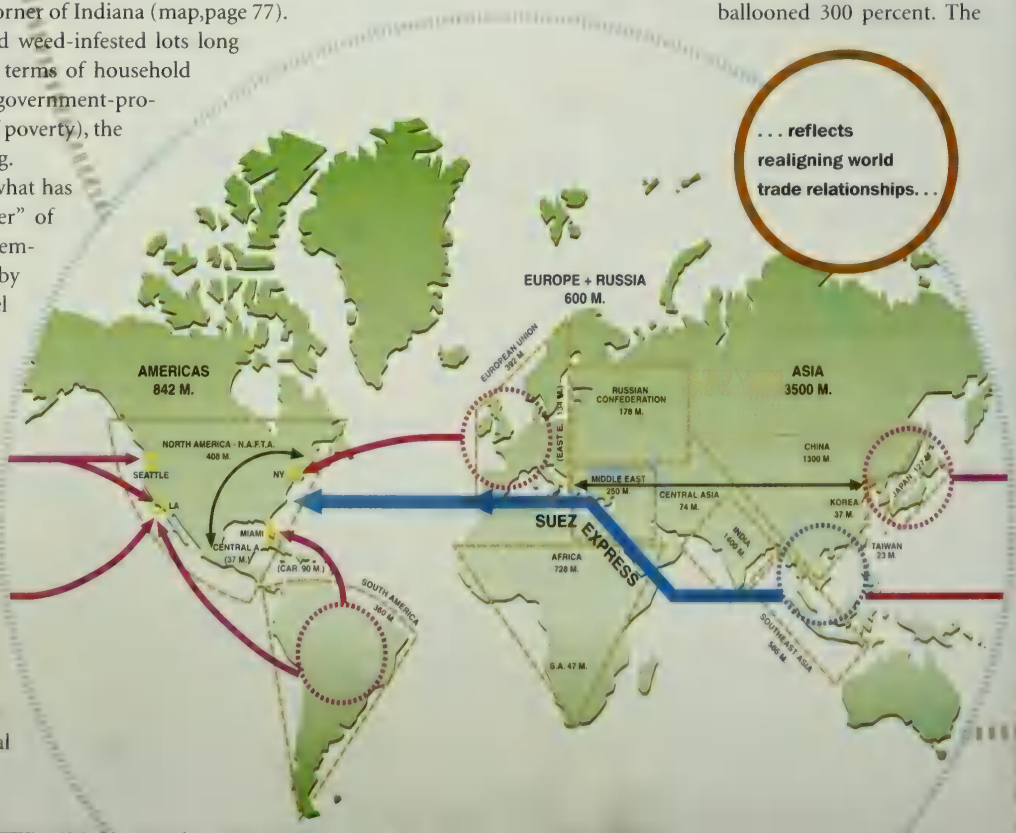
Schaumburg, however, sits in what has been dubbed Chicago's "favored quarter" of newer, outer-ring suburbs. It is an emblematic "edge city," of the kind made famous by the 1991 book of the same name by Joel Garreau (Doubleday). Even Garreau, who considered edge cities a pioneering urban form, recognized their opportunistic quality. They sprouted near already wealthy areas with few tax burdens and took advantage of highway and airport infrastructure paid for by older communities. Edge cities perniciously yield their wealth to [illegible] share of business-[illegible] infrastructure, says Orfield, there[illegible] enormous job growth at [illegible] older downtowns and, [illegible] suburbs. He [illegible] the influential

THE WORLD ACCORDING TO MICHAEL GALLIS:

For clients that usually include the business, institutional, and governmental movers and shakers of a region, Gallis maps the relationships, from global to local, that affect urban form.

The fragile underpinnings of growth

Not surprisingly, the leaders of the stable, affluent suburbs reject the accusation that they are parasites on the body of older communities. Even here, challenges abound. Land is being turned to urban uses at a much higher rate than population growth, as is the mileage people drive. Because the "privileged sector" is seeing a very high percentage of this growth, the green spaces that define their laid-back, bridle-trailed ambiance are disappearing, replaced by road-rage inducing traffic congestion. While the Los Angeles area's population grew 45 percent from 1970 to 1990, for example, its land area ballooned 300 percent. The



. . . reflects realigning world trade relationships. . .

population of Cleveland declined 11 percent, while land consumed grew 33 percent. Similarly, the annual miles people drive have increased three times as fast as population growth in the largest metro areas. So it is little wonder that the wealthiest communities—those that have derived the greatest economic benefits from urban growth—have joined the anti-sprawl movement to slow traffic growth and land consumption.

But the benefits wealthy suburbs enjoy may be threatened. Antisprawl activism is one aspect of the collapse of a consensus that has long fueled growth, says William Fulton, in his book, *The Reluctant Metropolis* (Solano Books, 1997). American urban growth has relied on the idea that "current property owners and residents paid higher taxes to support the debt-financed construction of new facilities (roads, water pipes, parks, etc.) to be used by newcomers who would then help finance the next phase, and so on." (He calls this an urban-growth "Ponzi scheme.") Californians passed a tax measure that shields existing residents from dramatic tax rises, so housing developers "now must pay for all the community infrastructure, which can be $30,000 to $40,000 a unit," Fulton explains. Because residents fear that new development will damage their quality of life, developments must also run a costly and complex environmental and community-approvals gamut.

The result, far from reducing sprawl, can exacerbate it. Such burdens "drive growth down the path of least resistance, which is further and further away. By the time you find a town that will accept the growth, you are halfway to Las Vegas," Fulton adds. Another unanticipated consequence, is the exacerbation of sociological spatial separation. "You have to supplement property taxes, especially with retail," Fulton explains. "For retail to succeed, you have to have an affluent community nearby. This has created a scale of class and income segregation in California today that is unprecedented."

Consider Silicon Valley, the 40-mile corridor of office parks and executive housing south of San Francisco [see "Correspondent's File," February 2000, page 45]. Computer and software businesses have created an economic juggernaut of unprecedented size in this emblematic low-density landscape. There is widespread fear that congestion, astronomical house prices, and environmental decline are killing the goose that laid the golden egg. "Much of the manufacturing and the low-paying jobs are moving out of the valley," observes Erik Sueberkrop, a partner at Studios Architecture, a firm with many computer-industry clients. "It is still ground zero for high-tech companies here, but in a lot of ways it no longer makes sense." An ethos of cheap, garage-based creativity is reeling in the face of median house prices pushing half a million dollars. The 140-member Silicon Valley Manufacturers' Group, which is said to account for one-third of private-sector jobs in the Valley, shares Sueberkrop's assessment. The group promotes initiatives for more transit and affordable housing and advocates policies to drive growth into needy, older communities.

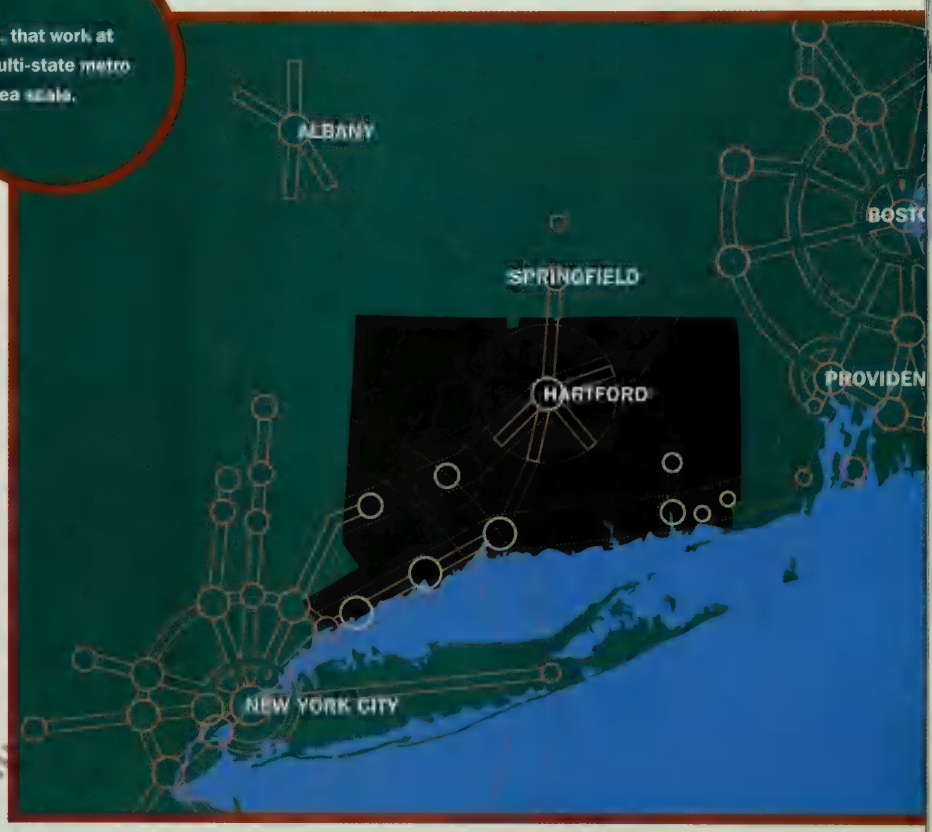
Emerging building types for the changing city

For those who don't want to engage the fractious political issues urban change portends, there is likely to be more work for architects as cities compete more aggressively to succeed in the rapidly changing economic landscape. Urban change is already altering traditional building types. Where once Portland, Ore., was almost entirely a city of one-family houses, designers now have to come up with new higher-density strategies to conform to the city's strict growth boundaries. Sierra Designs, for example, builds new, higher density, mixed-use projects in the growth-boundary-encircled city.

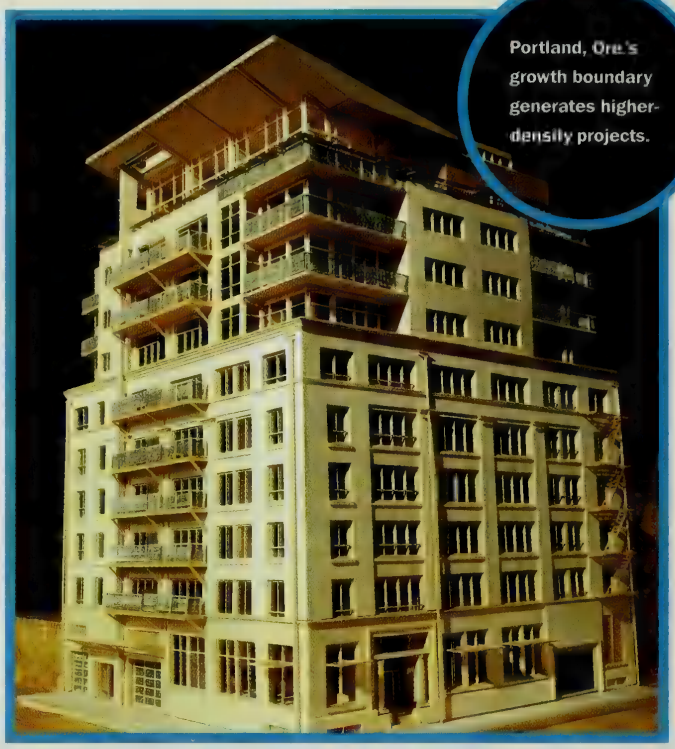
Cities also find themselves competing by using "trophy" urban projects, many of them with a high design profile. Appealing to relocators in a skills-short economy is a key reason cities all over the country are building museums, sports stadiums, aquariums, zoos, and performing-arts complexes ["Building Types Study 773," May 1999, page 223]. "Most suburbs will be worse off than central cities because they don't have the universities, the downtown commercial core, the museums, and the cultural and recreational facilities to build on," says Orfield.

Infrastructure is also becoming a higher priority. Gallis charts a vast global realignment of trade routes that is occurring as huge new populations are brought into the world marketplace in the wake of collapsing Communism [map opposite]. According to Gallis, trade is moving at new speed to a new scale, one that is gigantic without precedent. "To sustain the global economy, you have to continuously move people and goods as well as information around the world," he says. "Metropolitan areas [cities and suburbs together] are where the population concentrates and where production and consumption take place. They are the hubs in the network, which is why metro regions are more important than ever before." This new world order may call for new kinds of multimodal facilities, such as the air, sea, rail, road, utilities, and communications "Multi-Port" he has proposed for Charlotte.

European cities have gone on an infrastructure spending spree, upgrading airports, rail, road, and transit systems. The costs of new and



upgraded facilities are now too large and costly for a single city to finance, Gallis says. His research concludes that large, established ports have the advantage, but it is one they could lose to smaller, smarter, and more agile players. If the three states and dozens of cities within the New York metro area can't find a way to cooperate to reduce congestion in the harbor, airport, rail, and highway infrastructures, Gallis found in a recent study, the region could lose out to other Eastern Seaboard cities.



Portland, Ore.'s growth boundary generates higher-density projects.

Confronting the barriers to innovation

A larger role for architects in building skyline-defining projects is by no means guaranteed. Architecture is still too often an afterthought when businesses, institutions, and governments make decisions that profoundly affect the future. Those architects who have carved out a larger role in defining what cities can be have done it by directly confronting the barriers to architects' participation.

"There was an early moment in our South Florida work when we began to see how many other influences outside the client and the designer were constraining what we could do," explains Elizabeth Plater-Zyberk, FAIA, dean of the architecture school at the University of Miami, Coral Gables, and partner in Duany Plater-Zyberk. "The first rude awakening was zoning codes. We had not previously understood the degree to which they were preventing what we thought was appropriate." The firm, and other New Urbanists, have developed new codes of their own, which have influenced development nationwide.

New Urbanists have also attacked road-design standards, such as mandated widths and turning radii that they contend encourage excessive speed and impede the making of more walkable, socially cohesive communities. "We thought we had seen everything," says Plater-Zyberk. "But in one community the turning radius had been determined by the size of the fire trucks, which were very large. We found that these trucks were used because they carried the number of firefighters negotiated by the union."

Architects must confront rigid real estate industry lending standards if they want to build innovative, less sprawl-inducing projects, says Christopher B. Leinberger, managing director of Robert Charles Lesser & Co., Albuquerque. A longtime real-estate analyst and relocation advisor, Leinberger describes a taxonomy of 19 readily financed "products." Many of which are simplistic, congestion-inducing types like strip malls and the big-box retail outlets that are increasingly rejected by communities. But real-estate lenders regard these types as low-risk. Newer typologies such as apartments over stores are not understood by the industry and are virtually shut out of the conventional lending market, which greatly raises project costs. "To do New Urbanist projects, urban infill, or ecologically innovative projects demands a high level of architecture and quality," explains Leinberger. But because banks see only higher risk, "you can only afford the financing if you decrease quality. It's a Catch-22 situation." Robert Shaw, a developer of infill housing in Dallas, ticked off lender objections to what he does: "They say the land costs are too high. They don't like my projects because they don't meet HUD standards. They want me to do suburban development, which is bad planning. If you gate, the public—which these projects need—won't participate."

How can such limiting barriers to change be overcome? "You have to go out to their ultimate source," says Plater-Zyberk. "The [illegible] national standard. Then address whatever [illegible] the country, speaking to pension funds and other real-estate development underwriters. He hopes to persuade them that their long-term income goals can be aligned to high-initial-quality projects that pay back over a longer time horizon than the five-year span now commonly recognized in the financial community.

Get involved in the political process, say architect-politicians Harvey Gantt, FAIA, former mayor of Charlotte, and Richard Swett, FAIA, once a U.S. Representative, now ambassador to Denmark. Indeed, those who have tackled the mechanisms that drive patterns of urban growth note the near total absence of architects at political, civic, and institutional forums for change.

ZONING, INFRASTRUCTURE-DESIGN STANDARDS, AND BANK-LENDING PRACTICES ARE AMONG THE FORCES IMPEDING LIVABLE-COMMUNITY INNOVATION. ARCHITECTS CAN KNOCK DOWN THESE BARRIERS.

Who designs the future?

Planners, developers, and politicians argue that there is no place for architects in the broader urban growth and development debates. With sociology, technology, economics, and demographics so strongly driving urban change these days, is there a place for architects beyond the hope of appropriately packaging emerging or altered building types? "The purpose of architecture is the housing of humans and the activities they perform," says Gallis. "Large-scale urbanization has had a hard time delivering environmental sustainability and quality of life, so we fear it. Cities are physical artifacts and they can be managed and designed."

For 15 years, Gallis' firm has been helping clients see the physical connections and implications of changes in cities. One of his strengths as an architect, he says, is to use visualization tools to help clients understand how their cities are growing and what the key issues are. Trained neither as a planner nor strategist, Gallis simply stoked his passion by educating himself, and turning his design skills to rendering urban futures as they are and could be.

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ing urban growth, the challenges are likely to be profound—but the result could be a much more important role for architects in the making of cities.

Consider the effects, for example, of wide-bandwidth electronic communications technology. It appears to be exerting a strong decentralizing force. The city is "flatlining," MIT architecture school dean William Mitchell writes in his new book, *e-topia: Urban Life Jim, But Not As We Know It* (MIT Press, 1999). "Traditional urban patterns cannot coexist with cyberspace." Indeed, cybercommuters work from Vermont villages and Colorado mountain resorts. Satellites have turned the software parks of Bangalore, India, into a low-cost electronic suburb of Santa Clara. Some electronic forums—cybershopping, for example—may displace bricks-and-mortar retail stores. Mitchell, however, argues that architects can help define appealing new, nonvirtual places.

But there is another, apparently contradictory trend emerging. As metropolitan areas fling their borders ever farther outward, they are simultaneously becoming more dense. Traffic congestion is everywhere cited as spurring a new interest in living downtown. "Historically, consumers have been willing to drive for value," Greg T. Logan, of the real estate analysis firm Robert Charles Lessor & Co., told an Urban Land Institute conference in Chicago last spring. "They have been willing to trade lower housing costs for higher transportation costs." But with Americans working longer hours and with gut-wrenching traffic jams becoming a fact of life from Atlanta to Seattle, a significant percentage of the market will pay more for housing, says Logan. In-town residences must offer convenient access to "a major employment node," good quality schools, and proximity to desirable retail and services.

Thousands have moved into the once resident-free downtowns of Denver and Dallas. Loft conversions are proceeding at a torrid pace near Chicago's Loop, and housing prices have skyrocketed in Manhattan, Los Angeles' West Side, and both Boston and Cambridge, in Massachusetts—areas rich in jobs and amenities. Because housing is so tight in Silicon Valley, younger high-tech staffers are moving into San Francisco, 40 miles north, where housing seems inexpensive only compared to the Valley. The city also appeals, however, for its diverse social and recreational opportunities. [illegible] of Gehry Partners, LLP, says his firm is designing a new downtown complex [illegible] plant to attract these young workers.

[illegible] computing power allows organizations to assemble teams of specialized expertise of unprecedented complexity to attempt projects of heretofore unthinkable size. And sometimes new kinds of places must be created for these kinds of interaction. Skidmore, Owings & Merrill, for example, is helping the New York Stock Exchange figure out what form the trading floor of the future should take ["SOM Takes Manhattan," page 68].

It is the depth of the highly trained workforce that keeps Silicon Valley a magnet in spite of its high costs and congestion, says Sueberkrop. The presence of a wide variety of specialized businesses and a large, highly trained workforce are also the engines powering commercial revival in many of America's downtowns. Manhattan's burgeoning Silicon Alley draws on New York's concentration of media, advertising, art, and entertainment leaders for both expertise and clients.

Envisioning the emerging city

An architect can help people understand that abstract concepts have real implications on the ground. Gallis, for example, maps urban areas not in terms of how people traditionally think about them, but in terms of the forces that have created them and will affect them in the future. While people tend to associate themselves with the town in which they live, for example, Gallis' maps play down political jurisdictions. That's because people increasingly move across municipal and county lines for work or leisure. Gallis maps metro areas—the conurbation of cities and suburbs together that are today's real "cities" [page 78]. People may say they dislike large, crowded metro areas, but these are exactly the places people more often choose to live. Though the largest cities are not growing quickly, more people live in the most populous *metro areas* than ever before. Nor is the trend abating, primarily because large metro areas offer the greatest choice for careers, places to live, and recreation.

In this state of urban flux, Gallis says, a key role for architects is to help people recognize that cities are not planners' abstractions or formless blobs, but follow relationship patterns that can be traced, understood, and analyzed for their implications. So Gallis maps cities as webs of relationships that rely on infrastructure. He even maps the satellite nets that power urban communications networks.

CITIES ARE SPREADING OUTWARD WHILE BECOMING DENSER DOWNTOWN; PEOPLE NEED NEW MEETING PLACES—"ON LINE" AND "OFF LINE." ARCHITECTS' VISIONS CAN SORT OUT THE BEWILDERING POSSIBILITIES.

Metropolitics for metrocities

One of the reasons so many analysts look at metro areas rather than individual cities is that a consensus is growing that traditional political boundaries are impediments to growth and stability. Suburbs and cities too often compete wastefully with each other, critics say, inducing sprawl by subsidizing the location of new business on greenfield sites through tax abatements and below-cost infrastructure extensions. One of the reasons suburban congestion is so bad, says Orfield, is that favored-sector communities, which usually have many more jobs than residents, use restrictive zoning (mandating large lots, prohibiting apartments) to keep out lower-income workers (whose taxes may not cover the cost of services). These workers then clog highways because they must drive as much as 30 to 60 miles to reach their jobs.

Policymakers today debate ways to induce jurisdictions within metro areas to work together cooperatively. In his 1993 book, *Cities Without Suburbs* (Woodrow Wilson Center Press), David Rusk argued that "elastic" cities—cities that could annex their suburbs or were otherwise able to act in concert with them—were more *(continued on page 206)*

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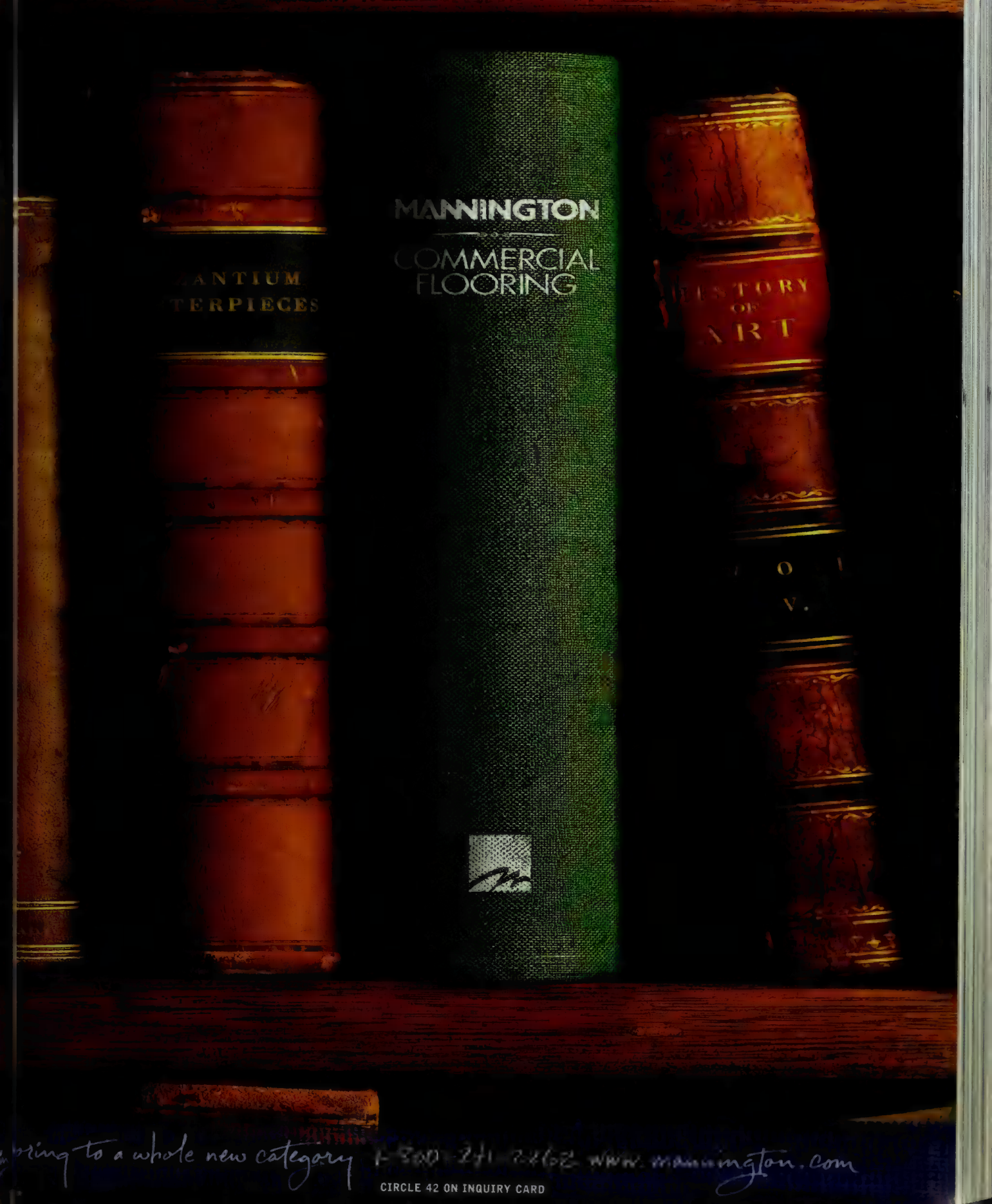
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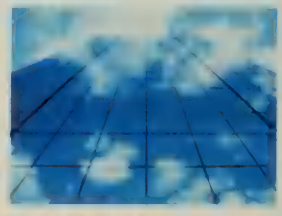


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Media-charged towers, waterfront parks, and new infrastructure are pulling dollars and people back to the city.

Sometime in the next few years, more than half the people in the world will live in cities. This will mark a critical turning point in history—less heralded than the recent turn of the millennium, but probably more significant. And once this demographic shift takes place, it will gain enormous momentum. Why? Because 7 of the 10 largest cities on the planet will soon be in Brazil, India, Pakistan, Bangladesh, Nigeria, and Indonesia, countries witnessing lightning-fast transformations from agrarian to urban economies. The challenges facing these rapidly emerging megacities—expanding infrastructure, housing new arrivals, employing unskilled millions, and preserving important parts of the existing environment—will be huge. But so will the opportunities—designing new landmarks, building communities, and creating memorable public spaces.

Cities have always been where the action is with regard to politics, business, and culture. This won't change, even with the Internet connecting every modem-enabled person in virtual chat rooms or cyber-shopping malls. Indeed, the resurgence of cities such as New York, London, Pittsburgh, and Mannheim, Germany, has coincided with the explosive growth of electronic communication and commerce. The projects in this month's issue show how cities are adapting to stay vital—from skyscrapers that express the multiple personalities of a media-charged society to parks that reclaim parts of the urban waterfront, from an infill building that combines popular and fine arts to an exhibition pavilion that engages mind and body.

In the features, you can read about the way sprawl has created a Darwinian struggle for survival among suburban communities [page 76] and how SOM got its groove back and is shaping some of New York City's biggest projects [page 68]. Finally, the Building Types Study takes a look at a remarkable piece of urban infrastructure, London Underground's Jubilee Line Extension [page 129]. The forces shaping cities are often beyond the control of architects, but the projects shown here demonstrate that good design can still make a difference. *Clifford A. Pearson*





Although much shorter than the Empire State Building, the 700-foot-tall Four Times Square still stands out against the skyline. From the east along 42nd Street (opposite), the tower looks like a collage of vertical structures.

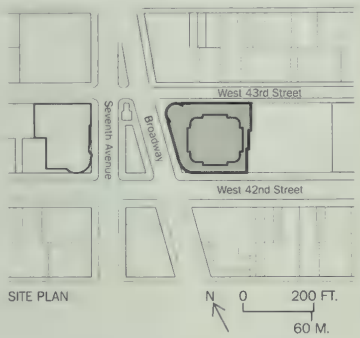
Fox & Fowle creates a collage in FOUR TIMES SQUARE, using skyscrapers past and present and a touch of "green."



By Suzanne Stephens

Fox & Fowle's Four Times Square is not avant-garde. The 49-story tower at 42nd Street and Broadway does not radically redefine the skyscraper as an urban building type, and its much praised energy-saving features are more symbolic than actual. Nevertheless, it is an accomplished amalgam of stylistic motifs and technical themes that embody concerns and obsessions of late-20th-century architecture. In so doing, it falls neatly within the history of New York City's commercial high-rises.

New York has never been a town where great design risks are taken, especially with the skyscraper. Even the city's most iconic towers—the Woolworth, Chrysler, Empire State, 30 Rockefeller Center, and, more recently, Citicorp and AT&T (now Sony)—have been derided for not advancing the skyscraper as architectural critics desired. Conceived to draw attention with their height and distinctive tops, these icons responded to previous development and zoning regulations with forms that featured setbacks, a vertical (or sometimes a horizontal) emphasis, and crowning spires. Admired as huge construction feats, they did not postulate new tall-building forms, functions, and techniques as Lever House, the United Nations Secretariat, and the Seagram Building did. Yet in time they still earned cachet as powerful emblems of this glittering city. They created the skyline.



As a commercial New York skyscraper, Four Times Square revels in its nature as a hybrid design, combining the crown and shaft of old skyscrapers with a base that dissolves into the surrounding signage of Times Square. Its melds neo-Modernist elements—techno-constructivist imagery at the top, curved walls, and the shaft's watery reflective glass—with traditional elements, including slightly recessed windows and granite cladding, which wraps much of the tower's south, east, and north sides. The form features layered planes, peeled surfaces, and collaged elements—right out of the 1980s and '90s skyscrapers of Cesar Pelli & Associates, Kohn Pedersen Fox, and SOM—fused with the heavy massing, setbacks, and surface detail of early-20th-century skyscrapers by Ely Jacques Kahn, Raymond Hood, and Ralph Walker. Even its structure is a hybrid: part concrete, part steel.

In other words, a lot is going on. Is it too much? Yes, if you're looking for purity. The decorative stuff added to the sleek elevations—the cavetto-shaped cornice on the glass setback on 43rd Street or the vertical fins here and there—seems unnecessary. (But let it be remembered that the Empire State was criticized for its masts as was the Chrysler for its car

Project: *Four Times Square, New York City*
Owner: *The Durst Organization*
Architect: *Fox & Fowle Architects—Robert Fox Jr., AIA, principal (administration); Bruce Fowle FAIA, principal (design); Daniel Kaplan, AIA, project director; Elizabeth Finkelshteyn, project architect; Daniel Schmitt, Hitoshi Amano, job captains*
Consultants: *Cosentini Associates (mechanical); The Canto Seinuk Group (structural), Kiss + Cathcart Architects (photovoltaic); Fisher Marantz Renfro Stone (lighting); Heitmann & Associates (exterior cladding)*
Contractor: *Tishman Construction*

which became appealing in due time.) Eclectic as the [illegible] it maintains a sense of balance.

Tower in a neon park

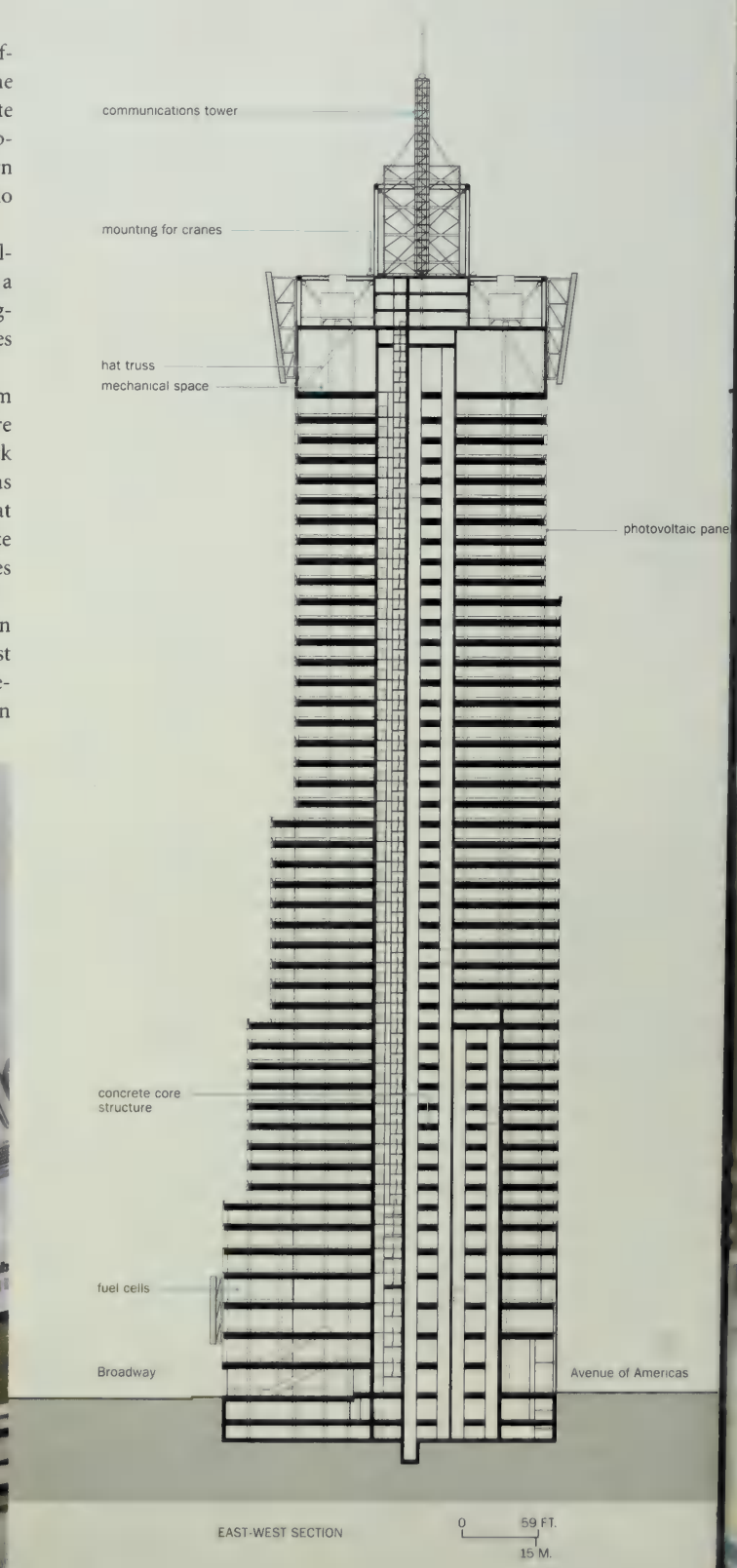
The shape of Four Times Square resulted from determinants slightly different from those of most contemporary skyscrapers in the city. For one thing, the idea of an office tower grew out of a plan by the Empire State Development Corporation (ESDC), which in 1983 had assembled properties, including the tower's site, to beef up office space in the former porn belt. As a result, city zoning rules tying bulk and height to floor area ratio (FAR) and mandated sky-exposure planes did not apply.

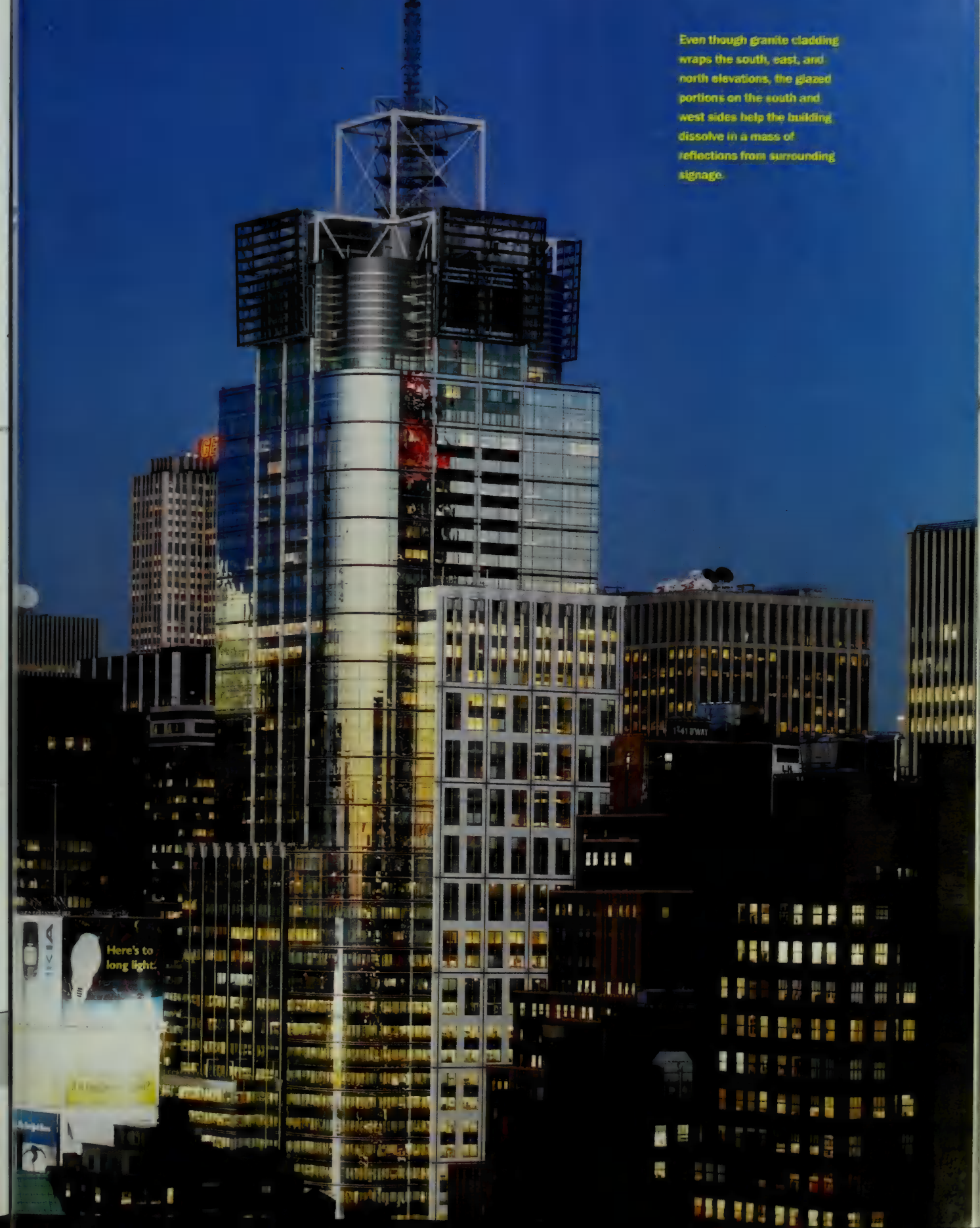
Architects Philip Johnson and John Burgee, working with developer George Klein, had first crack at the project and in 1984 proposed a cluster of four office buildings, totaling 4.1 million square feet and ranging from 29 stories (388 feet) to 56 stories (705 feet). The four big bulkies at the crossroads of Times Square proved a trifle unsettling.

Meanwhile, in 1982 the city upzoned the rest of this area, from 12 to 15 FAR, and 15 to 18 FAR, giving rise to fears that Times Square would soon be dark by day, in the shadows of high-rises, and pitch black by night, with all the honky-tonk buildings carrying illuminated signs gone. In part to quell these fears, new zoning for signage was passed, at this time, to encourage developers to append to their corporate office buildings the bright lights and dazzling signs that had once made Times Square fabulous.

After delays caused by lawsuits and a recession, the Johnson Burgee scheme was scrapped. But not the ESDC guidelines. The Durst Organization, a big-time New York developer, bought the 33,000-square-foot parcel at the northeast corner of 42nd Street and Broadway and then





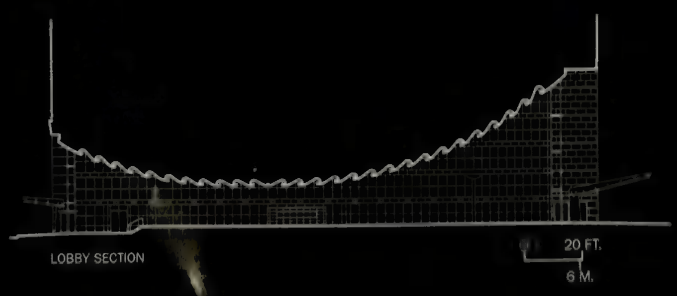


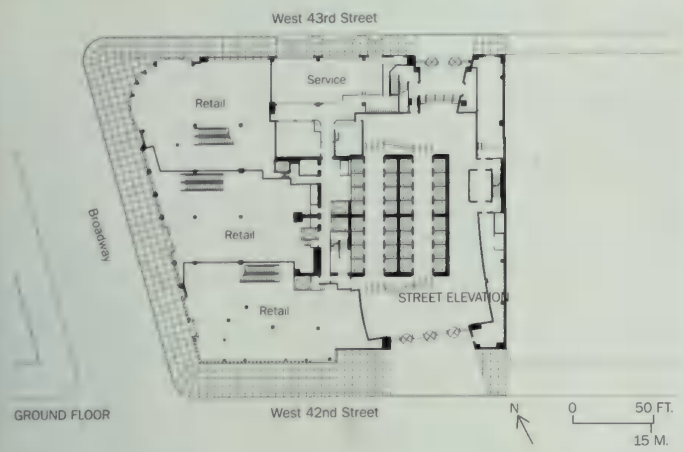
Even though granite cladding wraps the south, east, and north elevations, the glazed portions on the south and west sides help the building dissolve in a mass of reflections from surrounding signage.

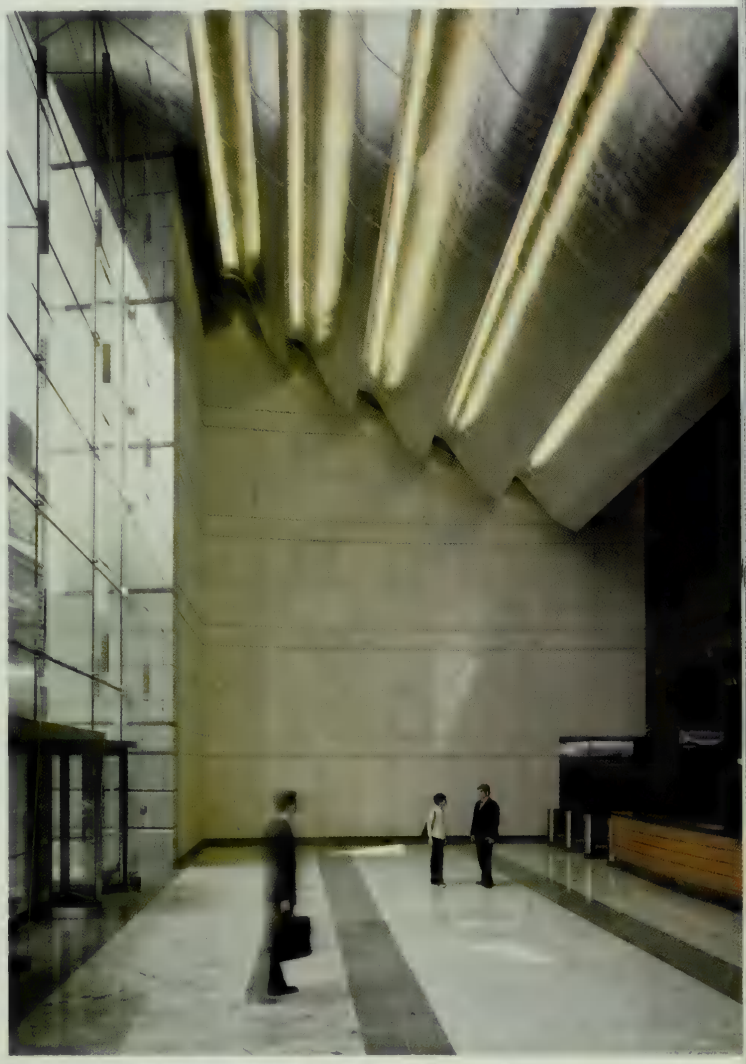




The 42nd Street lobby, marked by an angled glass canopy, compresses the entrance space. Then, the lobby expands dramatically upward to a four-story height (opposite top and section, below). The pass-through along the lobby's eastern edge (opposite bottom) is marked by a similar canopy ceiling of aluminum leaf on fiberglass panels.









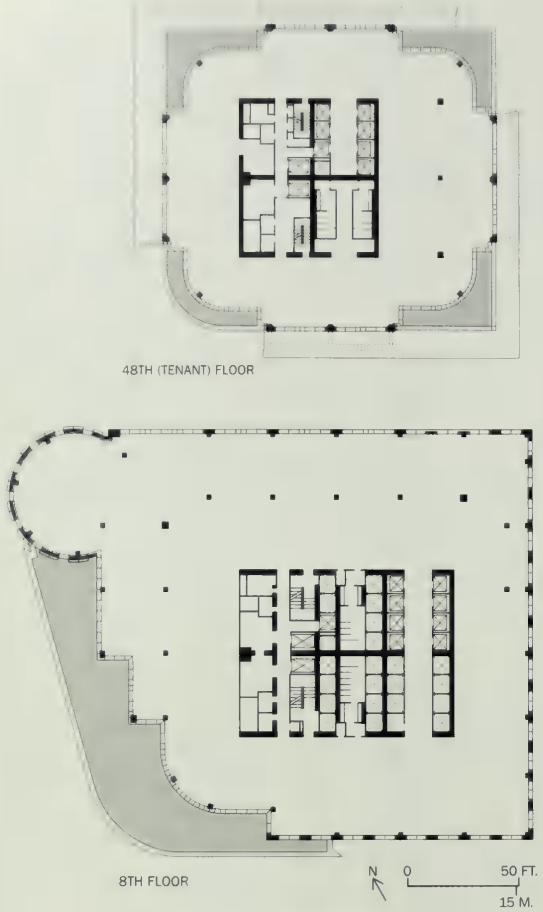
added an extra 11,000 square feet of land next door. Next, Durst brought in Fox & Fowle, New York architects known for a discreet stylishness in their Manhattan skyscrapers, to make the 1.6 million-square-foot behemoth the developers envisioned palatable. Although the building rises only 49 stories, its bulk, calculated according to the city's zoning laws, approaches about 35 FAR. Fortunately, and to the architect's credit, the tower doesn't show its amplitude. The irony is that Fox & Fowle introduced setbacks that had not so much to do with zoning, as with sculpting the mass based on aesthetics (and developers' economics). "People keep complimenting us on the proportions," says principal Bruce Fowle, FAIA. "The setbacks are where they make sense in terms of the building's form, not where the city requires them." The layers of granite and glass, along with billboard signs—of which about 20,000 square feet were mandated by zoning—also break up the mass and help it blend with the setting. Four more 4,300-square-foot signs, not part of the zoning, were attached to the building's crown to help demarcate its Times Square address on the skyline. While not yet in full working condition, two of these signs are being readied now.

At street level, the compilation of design elements imprints the building with different personae. Approaching the tower from the east along 42nd Street, you first come to the entrance. For the corporate tenants, Condé Nast Publications and law firm Skadden Arps Slate Meaghers Flom, Fox & Fowle pulled the lobby on 42nd Street east toward Bryant Park, away from Broadway, and designed a large granite and structural glass entrance portal with a subdued mien. But then, turning up Broadway to Times Square, you are assaulted by the boardwalk garishness of ESPN-Zone's plastic, razzle-dazzle storefront. It hardly seems to be the same building (the tenant, Disney, designed its own frontage). As you continue on Broadway to 43rd Street, Nasdaq's eight-story LED sign, mounted on the cylindrical portion of the tower's facade, shifts the Gestalt again, to a more up-to-date cybertech world.

How green is green?

With all these flashing signs gobbling up so much power, it's ironic that Four Times Square has been heralded as environmentally sensitive [June 1997, page 73]. The developers, Jonathan and Douglas Durst, both avowedly interested in environmental issues; the architects, Fowle and his partner Robert Fox, AIA, their project director Dan Kaplan, AIA; and a team of environmental consultants including Steven Winter Associates and Kiss + Cathcart Architects, tried to reduce energy use. And while investigating ways to save electricity at Times Square may be a little like opening up a smoke-enders clinic on a tobacco farm, their strategies are interesting.

At Four Times Square, alternative-energy fuel cells, which convert natural gas into electricity without combustion, were installed to



generate electricity on-site. But because of their size, their expense, and the fact that they run continuously, only two 200-kilowatt fuel cells, instead of the desired eight, were purchased, covering just 8 percent of the building's electricity.

Photovoltaic (PV) cells constituted another method of generating power on-site. Two hundred eighty eight PV panels replaced spandrels on 2,955 square feet, or half of a percent, of the building's walls. The electricity created would supply five or six houses but meets only about a half of a percent of the building's energy needs.

The curtain-wall system at Four Times Square incorporates conventional energy-saving features, as well. The double-glazed clear panels come in two types: a low-reflectance glass on the lower floors and a higher reflectance glass that cuts solar heat gain on the upper floors. Other environmentally conscious devices include light sensors in the offices and CFC- and HCFC-free absorption chillers run on natural gas for air-conditioning. The HVAC equipment is digitally monitored with variable drives, and fresh air is provided by a state-of-the-art air-pollutant filtration system. To reduce the amount of costly steel while obtaining the proper stiffness in the frame, the design team placed steel columns within reinforced-concrete shear walls. In addition, a steel hat truss at the top of the building reduces lateral deflection because the perimeter columns act as tension ties.

[illegible] the impressive laundry list of environmental strategies, the [illegible] savings is probably not earth-shattering. [illegible] opers and architects took the symbolic lead is [illegible] architect and managing editor of New York [illegible] *Construction High Performance Building Guidelines*, comments, "Sure, the project could be criticized for where it fell short. But nobody else in spec buildings is saying, 'We have to be socially responsible, take risks, and educate ourselves.' The developers, the architects, and all their consultants should take pride in this achievement. They are setting new standards."

Between the skin and the deep floor plate

Four Times Square illustrates the inherent conflict in trying to have a green, urbanistic, architecturally striking, and comfortably functioning building in New York City. The city wants dazzling signage on the office building. The architects and developers want to save energy through use of ample natural light while still holding onto the large floor plates. And the building tenants want views, natural light, and privacy. Because of the large floor size (typically 35,000 square feet) and the fact that the elevator cores were pulled east to accommodate setbacks, natural light reaches about 25 percent of each floor. As a result, the architects and developers gave the tenants energy-saving guidelines that advocated open plans. Open offices have been nicely tucked into some of the building's curves. Still, in most cases, it was not always easy to convince lawyers and journalists, who have to read, write, or talk in privacy, to get over the deficiencies, especially acoustical ones, found in open offices. (As it is, acoustical insulation in Four Times Square is not one of the building's strong points.) Furthermore, the open offices in the cylinder have smallish square windows punched through the Nasdaq sign. A five-foot space between the wall and the sign's exterior face, needed for the sign's air-conditioning, blocks part of the view and some light.

Big and bigger

The rest of the block to the east, toward Bryant Park, is also being developed by the Durst Organization. Fox & Fowle is the architect for this 2 million-square-foot parcel, as well. The firm has the interesting challenge of designing a new building that will partially obscure the east elevation of Four Times Square. According to Fowle, the scheme explores indentations and setbacks to mitigate the sense of more new bulk. Meanwhile, other buildings quickly rise. Fox & Fowle's Reuters Building, at 42nd Street and Seventh Avenue, will soon be completed, and buildings by SOM and KPF on the southern corners of 42nd Street are about to start construction.

Considering all this development and all the signs to come, one nagging thought remains: The icons of New York City's past are highly visible, standing tall and proud, their tops distinct against the backdrop of the sky and city. They are eye-catching artifacts in a scenic skyscape. So is Four Times Square, now. Over time, as the development in Times Square is filled out and the buildings are smothered in signs, can Fox & Fowle's new tower remain visible? To be iconic, a skyscraper must stand out against the sky, embraced by the air around it, demanding recognition. When it all blurs together, it may be hard to spot these New York beacons after all, at least in this part of town. ■

Sources

Curtain wall: *Glassalum*
Granite: *Domestic Marble and Stone; Castellucci Stone Quarry*
Marble: *Liberty Marble*
Glazing (interior): *W&W Glass Products*
Hardware: *Architectural Hardware*
Photovoltaic panels: *Energy Photovoltaics*
Ornamental metals: *Coordinated Metals*
Signage (construction): *Maier National Signs*
Elevators/Escalators: *Otis*
Canopies: *Post Road Iron Works*
Carpentry/Drywall: *Component Assembly Systems*

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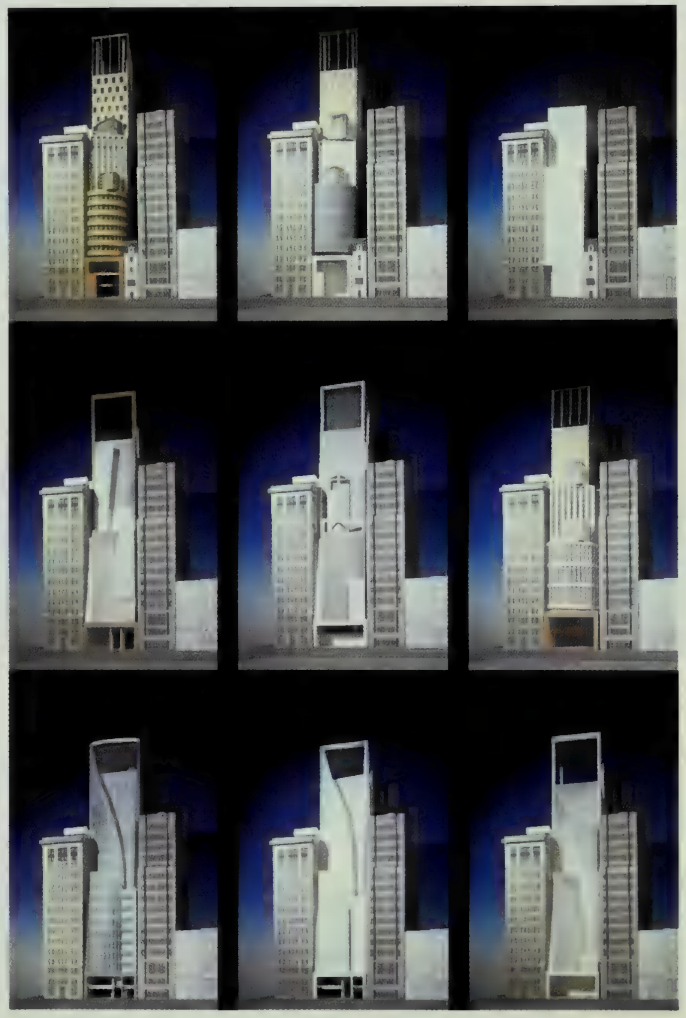


Corporate and tourist worlds mix at Times Square, where office buildings, such as Four Times Square, are festooned with glittering signs (such as the Nasdaq sign on the 43rd Street corner). Not so interesting are the stretched vinyl billboards that also blanket the area.



Folded and pleated, translucent and transparent glazing for the 369-foot-tall building was made in France, fabricated in Canada, and put together in a curtain-wall system in Miami. As numerous studies show, the design benefited from its many iterations.

CRITICISM: The seductive LVMH TOWER by Christian de Portzamparc revisits a century-old question about the nature of architecture.



By Suzanne Stephens

If truth be told, the "architecture" of the LVMH Tower in Manhattan is only skin deep. Behind the angled, shimmering glass facade is a narrow, dark, steel-framed building on the 100-foot-deep site. Fortunately, the skin is thick; the three-dimensional folds of the glazing generate angled walls and soffits inside, creating a layer of sculptured space along its 60-foot-wide front. At a certain depth, however, "architecture" turns into just "building," and most floors of the 24-story structure (from 3,000 to 5,000 square feet and 12 feet floor-to-floor) host cramped, windowless offices and showrooms for LVMH Moët Hennessy Louis Vuitton luxury goods. The major exception to the perfunctory stacks of office space is the top-floor Magic Room, a glass box, 30 feet high and almost 60 feet square. This well-proportioned penthouse, with its panoramic views of Midtown, makes a smashing venue for LVMH's parties and events.

Still, the tower is basically a room and a facade. So what is all the fuss about? Ada Louise Huxtable in the *Wall Street Journal,* Herbert Muschamp in the *New York Times,* and Paul Goldberger in *The New Yorker* have commended the inventiveness and quality of 57th Street's new arrival, especially its facade. Their arguments are well taken. They point out the rarity of having such a faceted form in a town where setbacks and sky-exposure planes, mandated by 1982 zoning regulations, have spawned buildings with a step-ladder configuration. Instead, Christian de Portzamparc, a Parisian architect, in association with the Hillier Group, created wedgelike planes, folded and chiseled, to show you can follow the rules and literally give them a new slant. No spec building, the tower, which will be the North American headquarters for LVMH, benefited from a top-of-the-line budget, said to be about $40 million or, at 112,167 square feet, $357 a square foot. (Frankly, this figure sounds low.) The craft of the curtain wall dazzles in a town where "crafted" usually means everything lines up, and its shimmering glass is luminously elegant in a city where Trump's glitz sets the gold standard for development. With such comparisons, what's not to like?

A French building with a New York provenance

Do all LVMH's exotic design ingredients make it "architecture," or is it just an office building with a chic facade? Interestingly, the design rekindles an issue addressed a little more than a century ago in New York by Louis Sullivan (another out-of-towner) with his Bayard Building (1897-99) on Bleecker Street. When the 12-story structure went up, its frank expression of structure, its flat top, and its verticality riveted the architectural community. It was a modern response to tall office buildings (the highest at the time was 32 stories) that tended to look like overgrown masonry bearing-wall chateaux and palazzi.

The major difference between the LVMH Tower and the Bayard Building is in the approach to the design of the facade. As Russell Sturgis

Credits

Project: *LVMH Tower, New York City*
Owner: *LVMH Moet Hennessy Louis Vuitton—Bernard Arnault, chairman*
Architect: *Atelier Christian de Portzamparc—Christian de Portzamparc, principal; Bruno Durbecq, Wilfrid Bellecourt, team*
Architect of record: *The Hillier Group—Gerard F. X. Guy Geier, Jim Greenberg, principals; John Mulliken, project architect*
Engineers: *Weiskopf & Pickworth (structural); Lilker Associates (mechanical)*
Consultants: *Robert Heintges (curtain wall)*
Construction manager: *Tishman*

and Montgomery Schuyler both noted in RECORD at the time, the Bayard's metal frame was revealed through a terra-cotta cloak, or "drapery of baked clay," as Schuyler described it. The facade allowed the "facts of the case to be revealed," and thus the building constituted architecture in its fully integrated sense, because the terra-cotta and ornament clearly articulated the building's metal frame. Even so, architects and critics still paid the most attention to Sullivan's facade. As noticed later, the floor plan was basically that of a typical loft building.

Drapery or mask?

Clearly, the LVMH facade does not cling to the underlying frame as the Bayard Building's terra-cotta skin does. De Portzamparc did not want even LVMH's floors to be "conspicuous" and, therefore, "fragment the verticality." Although de Portzamparc, like Sullivan, values vertical expression, his facade acts more like a mask, concealing rather than revealing the structure behind it. Indeed, the structure at the perimeter ingeniously follows the form, not vice versa: a column, set back from the facade and sloping in two directions was devised by engineers Weiskopf and Pickworth to counteract wind loads and avoid transfer columns at every floor.

If a building is a mask, can it be architecture? American 19th-century critics voted no, unless the mask represented the structure and function. Yet, recently, scholars have revisited an argument proposed by Gottfried Semper, the 19th-century German architect. Semper maintained that the "veiling" of a structure was quite natural, having derived from the practice of dressing scaffolding for a festival. He said the mask involved the "denial of reality, of the material, [which] is necessary, if form is to emerge as a meaningful symbol." While Semper was referring to the painting of marble temples in classical Greece, his dictum seems to condone in advance the current fondness for upholstering steel-frame-skyscrapers with glass or granite and calling it "architecture."

So where does that leave LVMH? Because it is not architecture, according to Sullivan's definition, could it qualify in an ahistorical reading of Semper? Ironically, no. LVMH's mask does not deny its materiality as glass, but exults in it. The form that Semper wanted to see emerge as a meaningful symbol remains a surface. Owing to LVMH's three-dimensionality, including cantilevered floor plates and that facade column, we can say, however, the glass mask is at least architectonic.

Can a building with an architectonic facade pose a direction for future architecture? Like the Bayard Building, LVMH is intimate in scale. Framed by the Chanel Building on one side, a limestone, genteel affair by Platt, Byard Dovell, and an older brick building on the other, LVMH's prismatic, abstract forms do not alienate or overwhelm the passerby. If the tower were larger and taller, that would be another story.

The LVMH Tower owes its success to its location, size, scale, and price tag. Its custom design, a welcome addition to New York's streetscape, is one-of-a-kind. As a new response to current zoning, it makes a strong contribution. As a prototype for the skyscraper form, it doesn't. It is runway couture that would lose its essence in translation to ready-to-wear. ■

Sources

Glass manufacturer: *St. Gobain*
Glass fabricator, sandblasting, and ter[illegible]
Curtain wall [illegible]ctor: *Glassalum*
[illegible] *[illegible] Bridge*
[illegible] *[illegible]-mer*
[illegible]
Cast synthetic glasslike material: *Neopareis (Japanese supplier)*
Slate: *Burlington Slate Co.*
Venetian plaster: *Art in Construction*

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The double insulating glazing of the curtain wall (left) has three types of outer lights: one outer light is white, low-iron glass, which has been sandblasted on its inner surface in a geometric pattern; the second is a green-tinted glass with a ceramic frit on its inner surface, and the third type of exterior light is regular clear glass. All the inner lights of the wall are also regular glass, many with a low-E coating.

In working with the double-glazed panels, Robert Heintges, an architect who consulted on the curtain wall, designed a custom edge seal for the white glass, since the normal edge of black butyl and silicon would be visible (it works fine for the greenish glass).

The Magic Room (opposite) has clear glass on two walls and is sandblasted on a third; fin-tube radiation heats the 30-foot-high space.

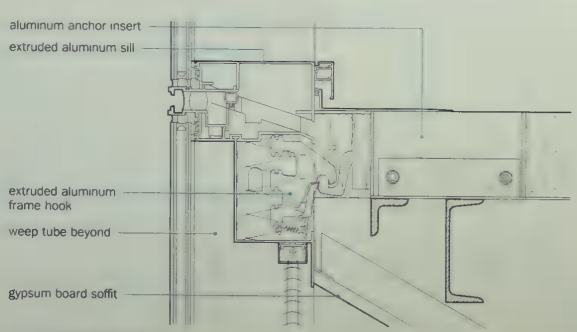




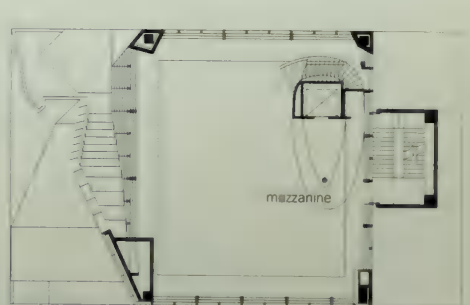
STREET LEVEL



19TH FLOOR



SECTION AT STACK JOINT



23RD FLOOR (MAGIC ROOM)



The new park, a green oasis adjacent to downtown Pittsburgh, formerly served as a parking lot running along the Tenth Street Bypass (opposite left). A concrete ramp and planted vinescreen (opposite right) now shield the park from the road.

Michael **Van Valkenburgh** takes people for a walk over the water's edge in his design for Pittsburgh's **ALLEGHENY RIVERFRONT PARK.**

By Clifford A. Pearson

American cities have trouble with edges—either turning their backs on the natural features that define the local landscape or letting the boundaries between urban and suburban fray into wastelands of warehouses and big-box stores. Pittsburgh long suffered from such tendencies, having surrendered much of its south bank of the Allegheny River to car traffic that cut off the downtown from the three waterways integral to the city's identity. A sliver of land on the Allegheny that the Pittsburgh Cultural Trust wanted to convert from parking lot to park posed a particularly tough challenge because it was essentially all edge: 4,000 feet long and just 35 feet wide.

Since 1984, the Cultural Trust has revitalized a 14-square-block section of downtown Pittsburgh, an architecturally rich zone that had become a virtual ghostland after the local steel industry collapsed in the 1970s and the city lost nearly half its population. Over the last two decades, the Cultural Trust has made important inroads with a series of successful interventions. It has brought old theaters back to life, restored historic building facades, and commissioned public artworks that include a lighting scheme designed by architect Richard Gluckman, FAIA, and theater director Robert Wilson; a town square landscaped by Dan Kiley and animated by a multi-tiered fountain and benches by artist Louise Bourgeois; and a sculptural installation by Alexander Brodsky.



Although the cultural district extended to the Allegheny River, the area was separated from the water by Fort Duquesne Boulevard and the Tenth Street Bypass, which together presented a formidable, 10-lane traffic barrier. In 1910, Frederick Law Olmsted Jr. had envisioned a riverfront park in his plan for Pittsburgh, and the Cultural Trust's 1990 plan later incorporated this concept. As it had done with many of its downtown projects, the Cultural Trust encouraged designers competing for the park job to collaborate with artists.

"When I first saw the site, I thought, 'This is impossible,'" says landscape architect Michael Van Valkenburgh. "It was more than half a mile long and just 35 feet wide." To make matters worse, the site lies in a flood plain that is periodically immersed under 20 feet of water and battered by ice floes in the winter. But nature wasn't the only force to reckon with; multiple layers of city, state, and federal jurisdiction, involving environmental, transportation, and sewage issues, meant that 20 different departments in 9 public agencies had oversight on the project.



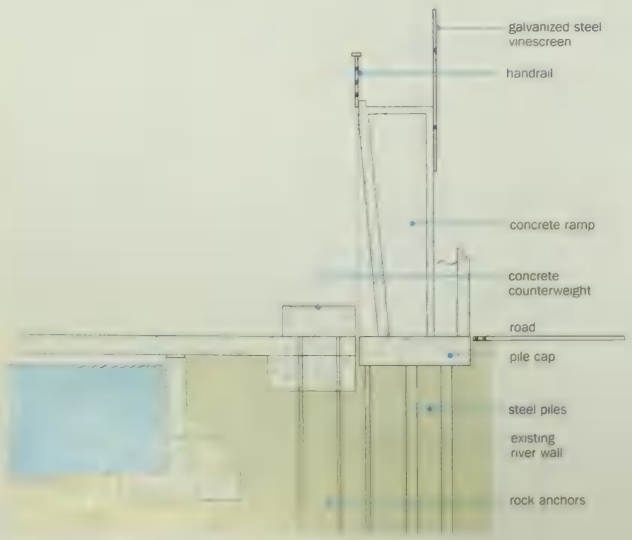
Before competing for the commission, Van Valkenburgh asked installation artist Ann Hamilton and her husband, sculptor Michael Mercil, to join his team. "Ann's work is very spatial and deals with how the body experiences space," says Van Valkenburgh of his collaborator. "We made it clear to the client," he adds, "that Ann and Michael would be involved in the design of the park, not just adding a piece of art to it."

The project would proceed in two phases, starting with a 35-foot-wide landscape at the river's edge, followed by a park at the higher

Project: *Allegheny Riverfront Park*
Landscape architect: *Michael Van Valkenburgh Associates—Michael Van Valkenburgh, principal-in-charge; Matt Urbanski, Laura Solano, senior associates; Tim Barner, Martin Roura, team*
Artist collaborators: *Ann Hamilton, Michael Mercil*
Engineers: *Ove Arup & Partners (structural); Frederic R. Harris (civil)*
Consultants: *GAI Consultants (geotechnical); InterFluve (hydrology); Phillip Craul (soils); Accessibility Development Associates (ADA); UDA Architects (planning)*
General contractor: *C&M (contracting)*

The park, just north of the cultural district (right), will be built in two phases. The lower portion is complete and the upper one will follow in 2001 (below).

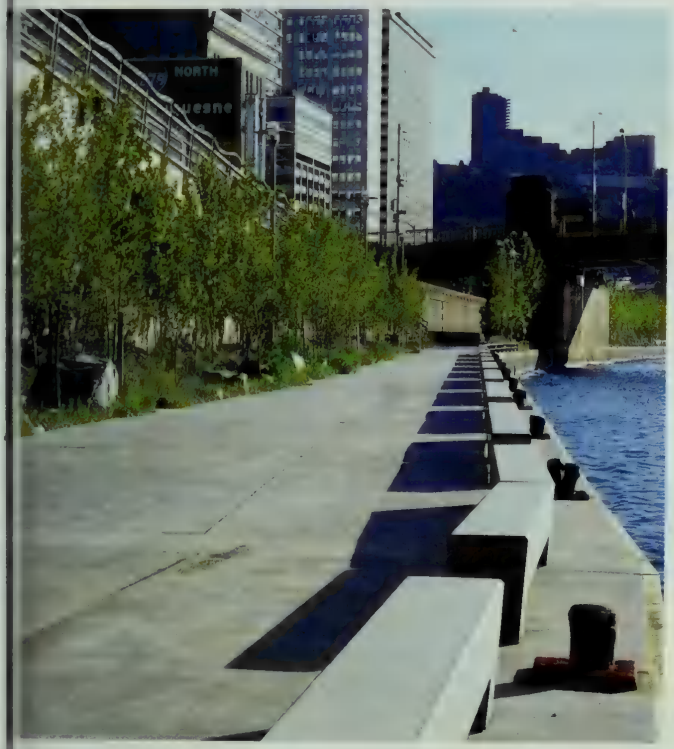




street level and incorporating a redesigned Fort Duquesne Boulevard. The lower park cost $8.5 million and opened at the end of 1998, while the second phase will start construction this summer and debut in spring 2001.

"We saw the upper park as being urbane, formal, and of the city, while the lower park is more willfully wild," states Van Valkenburgh. The design of the upper park calls for reducing the number of lanes on Fort Duquesne Boulevard from six to four and expanding the median into a more usable space with alternating clusters and rows of trees.

The lower park presented two big challenges: how to get people down to the water's edge, 24 feet below the city's streets, and how to turn a strip of riverside land into more than a glorified footpath. The solution to the first problem was a pair of monumental ramps stretching out from the Seventh Street Bridge, one of three landmark steel bridges spanning the Allegheny along the length of the park. Made of poured-in-place concrete, the 350-foot-long, 6-foot-wide ramps block the noise of cars speeding along the Tenth Street Bypass, but also serve as the park's dom-







Concrete benches provide a subtle barrier and seating (left). Each of the two 350-foot-long ramps turns an ADA requirement into an architectural feature (left bottom). Artists Ann Hamilton and Michael Mercil collaborated on the design of the entire park, but were particularly responsible for the flowing bronze handrail (right top) and bulrush markings in the concrete paving (right bottom).



inant architectural feature. On the city side, a 13-foot-high "vinescreen," made of galvanized steel and planted with Virginia creepers, rises above the ramps, while the ramp cants toward the water at 14 degrees. Snaking along the outer edge of the ramps is a cast-bronze handrail designed by Hamilton that recalls the fluid motion of water.

To overcome the narrowness of the riverbank, the designers cantilevered a concrete walkway, extending 15 feet over the surface of the river. Precast-concrete girders, 3 feet, 6 inches deep and set at 25-foot intervals, support precast beams and planks, eliminating the need for all but a few piles in the riverbed. Hamilton imprinted the poured-concrete paving with bulrush reeds, leaving the ghost of nature in the hard material. By pushing much of the walkway over the river, the designers made room for wedges of earth dotted with boulders, grasses, wildflowers, and native species of trees, such as river birch, red maple, silver maple, and cottonwood. Like the concrete benches lining the park's north edge, these trees can take a lot of punishment; when snapped by ice floes or floodwaters, these fast-growing species sprout again with multiple trunks.

Walking through Allegheny Riverfront Park, visitors enjoy one of those urban experiences that balances accessibility with a sense of separation. The skyline, the muscular bridges with their rusticated bases, and the muffled sounds of cars zipping by are reminders that the big city is nearby. But kneel down, and you can touch the river. ■

Sources
Precast concrete: *A.C. Miller*
Galvanized steel vinescreen: *Custom by Wilhelm + Kruse*
Handrail: *Custom by Laran Bronze*
Ramp lights: *C. W. Cole*
Pole lights: *Sterner*
Funding: *Vira I. Heinz Endowment, the Commonwealth of Pennsylvania, the Pittsburgh Cultural Trust's Campaign for a Dynamic Downtown, the Pittsburgh Water and Sewage Authority*

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Though the designers encountered a strong aesthetic in the gantries' 19th-century industrial forms, they avoided the temptation to overuse them as a source. "If the details become too derivative, designs tend to become theme park-ish," says landscape architect Thomas Balsley. "We try to create a dialogue between the new materials and the old."

Thomas **Balsley and collaborators** reclaim priceless waterfront formerly lost to industrial use for **GANTRY PLAZA STATE PARK.**



By Charles Linn, AIA

Few who spy the huge steel frames marked "Long Island" across the East River from the United Nations know what they are or why they are there. These structures mark both the last vestiges of a booming industrial district that dominated the west edge of Queens and the beginning of a new park system that will eventually contain 19 acres, with more than a mile of continuous waterfront esplanade. The site is Hunters Point, and a new park there bears the name of the mysterious steel structures: Gantry Plaza State Park.

In the early 1850s homes were built there, and businesses grew up around a ferry terminal and a railway station at the terminus of one of the commuter lines leading east to Long Island. But Hunters Point's access to the water made it quite valuable for industrial use, and by the end of the Civil War, the area was filled with oil refineries and manufacturing plants. The gantries were built in 1876 so that freight cars being shipped on barges could be pulled onto landside tracks. These gantries were among the first water-land rail-transfer facilities in the New York City region. By the end of World War II, industrial activity at Hunters Point had begun a slow decline that has lasted almost 50 years, leaving scores of empty factory buildings and acres of unused railyard behind.

Fortunately, the loss of industry left prime waterfront real estate open for reclamation. Gantry Plaza State Park and the rest of the park system that will follow compose only part of the Queens West Waterfront Development. The developers project that eventually there will be 6,385 residential units on the 74-acre site, as well as 117,000 square feet of commercial and retail space, 132,000 square feet of community and school facilities, and a 350,000-square-foot hotel. Gantry Park, along with a smaller greenspace called the Hunters Point Community Park, and City Lights, a residential tower by Cesar Pelli, have already been completed.

All things for all people

One of the most enlightened aspects of Gantry Park's design, by landscape architect Thomas Balsley and his collaborators, Richard Sullivan, AIA, and landscape architect Lee Weintraub, is that it is very democratic. In a relatively small space they have produced enough variations that almost anyone can find an appealing place. The all-things-for-all-people nature of the public spaces is especially important in this diverse community. Residents of the existing low-rise housing around the Queens West development initially feared that the new construction—much of which will be mid- to high-rise—would gentrify the neighborhood and block access to the waterfront. The designers took great pains to address these concerns during the design of the park and have provided a mix of uses so that these communities could come together.

"The mix is what makes the difference between parks that alienate people and become settings for mayhem, and parks that give people of different cultural and economic backgrounds, a place that they all can enjoy," says Balsley.

Project: *Gantry Plaza State Park, Long Island City, Queens, New York*
Owner and client: *Empire State Development Corporation, Frances Huppert, FAIA, senior vice president, design and construction; Queens West Development Corporation; Port Authority of New York-New Jersey; NYC Economic Development Corp.*
Landscape architect and architect: *Thomas Balsley Associates and Sowinski Sullivan Architects, with Lee Weintraub—Thomas Balsley; Richard Sullivan, AIA; Lee Weintraub; Samuel Lawrence, Laura Auerbach, AIA; William Harris*
Consultants: *Mueser Rutledge Consulting (marine engineering); Domingo Gonzalez Design (lighting); Alfridi Associates (waterfront inspection and cost consultants); 212 Harakawa (graphic design); Ralph Applebaum Associates (exhibit design); A. Billie Cohen (horticulture)*







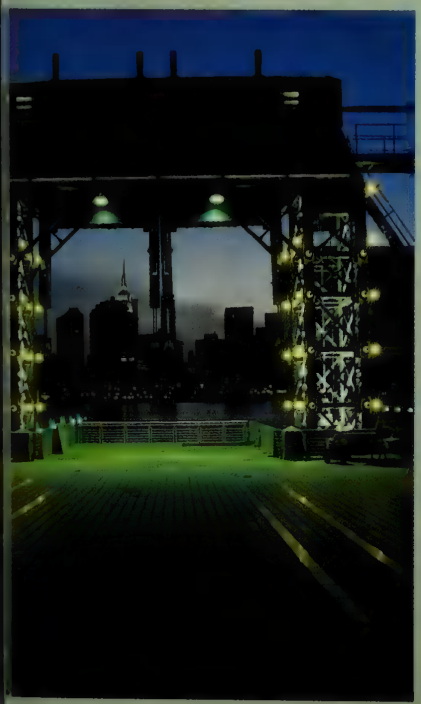


1. *Cafe plaza*
2. *Performance plaza*
3. *Ferry pier*
4. *Cant*
5. *[illegible]*
6. *[illegible]*
7. *[illegible]*
8. *[illegible]*
9. *[illegible]*

The design fully exploits the natural contours of the shoreline. There are no railings or seawalls to exclude people from the water, as are typically found at parks built on landfill.

The south gantry (below) is located in the midst of the interpretive garden. Its rails, set in native grasses, recall the site's appearance after being abandoned. The north gantry (bottom) can be used as a performance space; the steel structure is a proscenium arch with a skyline backdrop.





A coexistence of opposites

The park is divided into two parts: North Gantry Plaza, made of open space, and the softer, more organic South Gantry Interpretive Park, whose scale is broken down by a patchwork of walks and plantings. North Gantry Plaza is paved in granite, with steps and retaining walls that are formed in arcs among mature shade trees. A circular fog fountain just inside the park would make a perfect venue for telling spooky tales on chilly fall nights. A few steps away at a semicircular performance plaza, it is easy to imagine a Greek chorus performing Sophocles, or kids playing kick the can. The looming north gantry forms a proscenium arch, with the skyline of the city acting as its backdrop, and can be used as a stage. The northernmost pier has a long, sinuously curved bench with back-to-back seats where commuters will one day wait for the ferry, once service is reestablished. Just south of the gantry is the cafe pier, where in the future food service will join permanent tall metal stools and an arc-shaped counter, all covered by a metal canopy.

Today, visitors can enter the South Gantry Interpretive Park by crossing a curved, open-grate metal bridge that spans a cove where marsh plants grow in shallow water, or by walking over a gravel path that leads through an interpretive garden. Here, native grasses and shoreline plants have been reintroduced to give a sense of what the river's edge might have been like before it was industrialized and after it was abandoned—some of the plants grow up between lengths of rusty railroad rails and large stone blocks, reminders of abutments that for decades were the traditional foundations for railroad structures in the region.

A third pier, off the south plaza, has the most romantic quality of any space in the park. Named "the stargazing pier" by the designers, it is dimly lit at night, allowing visitors to recline on overscaled chaise longues and observe the Manhattan skyline undeterred by nighttime glare. A fishing pier to the south is equipped with a long wooden bench that undulates like a wave and terminates at the "fish or cut bait table," a flat, puddle-shaped slab, complete with a faucet that supplies water to a gutter that runs its length for fish cleaning. It also makes a great place to strike up a conversation.

Getting respect

A public project's success can't always be measured by just the presence of people. "Folks generally tell you more by whether they show up to enjoy it or abuse it," says Balsley. After two years, Gantry Plaza State Park shows nothing but kindness from its users. There is no graffiti, no broken equipment, no glass shattered in anger. It must be working. ■

Sources

Stone: *Castalucci Stone International*
Metalwork: *West Field Sheet Metal*
Exterior lighting: *Bega Lighting; Kilark Lighting*

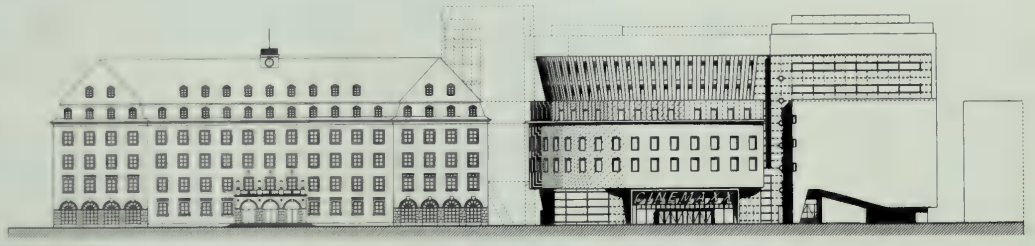
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By breaking the building into a series of distinct forms, the architects reduced its apparent bulk. The curving yellow drum helps draw visitors to the center of the mid-block site.

Michael **Wilford** inserts a spatially complex **MUSIC SCHOOL AND CINEMA** into the historic heart of Mannheim, Germany.

By Hugh Pearman



STREET ELEVATION

In the city of Mannheim street names mean little, where they exist at all. Built on a supremely rationalist 18th-century rectilinear grid, central Mannheim is contained within the circle of the city's original fortifications. Instead of using street names, this part of Mannheim is organized by blocks, each one given a grid reference, neatly mounted on a blue-and-white-enameled plate. Set in the thick of the city—at block N7—Michael Wilford and Partners' colorful new music school and cinema fills a gaping hole in the urban fabric.

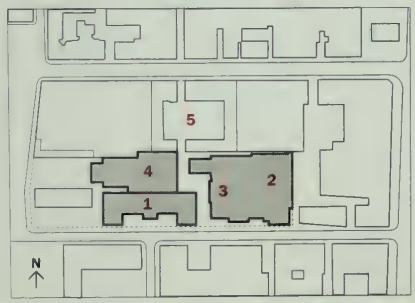
Mannheim is an important industrial town, in the very center of Germany and by extension Europe, at the confluence of two mighty rivers, the Rhine and the Neckar. It was a vital center of Albert Speer's armaments production program for Hitler. Consequently, it was a prime target for Allied bombing and was mostly destroyed by the end of World War II. Postwar reconstruction adhered faithfully to the original block plan, but, although worthy, the new architecture has been mostly dull until recently. Nevertheless, as with Frankfurt to the north and Stuttgart to the south, things are changing rapidly.

An Anglo-German architecture firm

Michael Wilford has been active in Germany since he and his late partner, Sir James Stirling, won a 1977 competition for the celebrated Stuttgart Staatsgallerie. Opened in 1984, the Staatsgallerie received rave reviews and led to a steady flow of German commissions, including a music school and other arts buildings nearby. His is now a true Anglo-German practice, with an equal number of staff in each country.

In Stuttgart, Wilford has designed nearly an entire cultural quarter in phases over many years, but in Mannheim his task was very different, requiring high-density, small-footprint urban infill. The available site occupied only a fragment of block N7: On one side was the existing music school, housed in the grand but conservative former 1920s headquarters of electrical engineering and electronics firm Siemens.

Hugh Pearman is the architecture and design critic of London's Sunday Times *and the author of* Contemporary World Architecture, *published by Phaidon Press in 1998.*



1. *Old music school*
2. *Cinemaxx*
3. *New music school*
4. *Future concert hall and terrace*
5. *Future passageway*

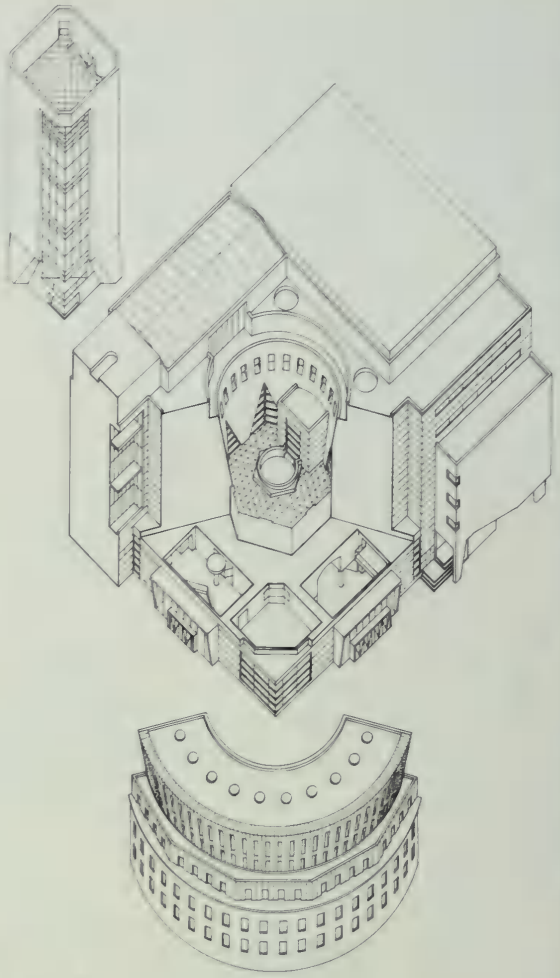
Behind the site was a large, blank-walled supermarket. And on another side was a water-filled hole in the ground where a private developer had gone bust.

For the Music School and Cinemaxx, Mannheim's city development director, Siegfried Kendel, organized an unusual partnership of both the public and private sectors. First, Kendel brought in a commercial developer to build the whole complex as one package following Wilford's design, including the music school (and its affiliated dance academy) and

Project: *Music School and Cinemaxx, Mannheim, Germany*
Architect: *Michael Wilford and Partners—Michael Wilford, principal-in-charge; Gudren Ahrens, Darren Capel, Stephan Gerstner, Klaus Grübnau, Mark Jeffs, Alison McLellan, Stuart McKnight, Ian McMillan, David Reat, Sven Schmedes, Manuel Schupp, Charlie Sutherland, Karen Waloschek, project team*
Engineers: *Wayss & Freytag (structural); KHS-Plan (mechanical and electrical)*
Consultants: *Dr. Westphal (acoustics); Manfred Haas (fire); ITA Wiesbaen GmbH (building physics); Angela Bezzenberger (landscape); Trischler & Partner (soils)*
Project manager: *BOP Gesellschaft für Bauoptimierung*
General contractor: *Wayss + Freytag AG*

A fourth geometric form, the individual identities to various components: a yellow drum houses lobbies, a copper-clad rotunda embraces the music school, and a white tower accommodates the dance academy (this page). The dance tower (opposite) recalls Stirling's Leicester Engineering Building.





AXONOMETRIC





a 10-screen, 35,000-square-foot multiplex for the Cinemaxx chain. Then, after construction was completed, the city bought back the music school, leaving the multiplex cinema privately owned and operated. Architecturally, the cinema and music academy interlock: seldom are popular and high culture so intertwined.

Approaching the project on its streetside, you observe Wilford's compositional game slowly emerge from the adjacent buildings. The pale blue stuccoed elevation of the cinema block fits into the streetscape, with its entrance set back a few feet from the street. A 1,080-square-foot cinema cafeteria occupies the corner, but above it, sits a great yellow drum, sweeping the bulk of the complex into the heart of the site, where the music school entrance shares a courtyard with the existing 1920s building.

Layering the building vertically

The deeper into the site the building extends, the higher it goes. The rotunda of the music school, which in plan is firmly engaged with the L-shaped cinema component, is layered vertically: the yellow drum forms a base, a faceted floor emerges from the drum, and an outward-leaning metal-clad cone crowns the composition. By stacking a series of discrete forms, Wilford picks up the cornice line of the old Siemens building and reduces the apparent bulk of his new 149,000-square-foot structure. Set back farthest from the street and rising above the rest of the arts complex is a final component, a dance academy expressed as a white rectilinear tower.

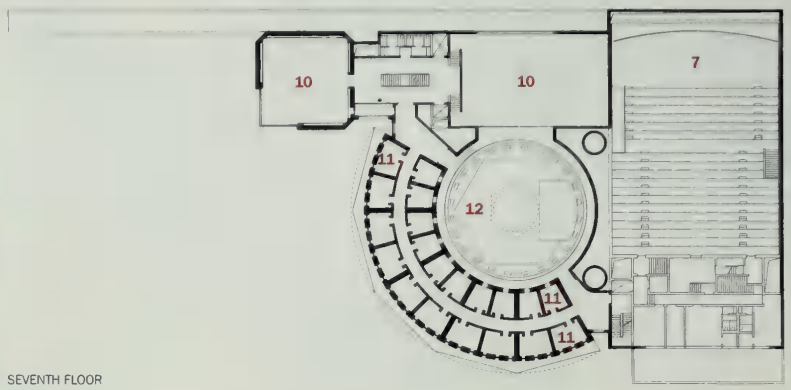
Deceptively simple in plan, Wilford's scheme took some spatial maneuvering to achieve. No simple party wall separates the cinema from the academy. Instead, there is an interweaving of volumes, with the largest ballet studio above one of the cinemas and emergency escape stairs for the cinemas sliding behind the studios and leading into a central academic courtyard at ground level. The new music school also enjoys a circular court on the fourth floor of the rotunda. A large glazed oculus in the floor of this private, elevated courtyard brings daylight to the cinema lobbies below. Tantalizing visual connections between the lobbies of the school and the cinema are established, enabling the two communities to glimpse each other through clear glass, but not to touch or speak.

Space is tight, so the school's lobbies are smaller than the cinema's, which must accommodate up to 2,600 people in its 10 auditoria. Even so, two outdoor rooms for the school add a sense of luxury: a fourth-floor circular court with sloping walls clad in prepatinated copper

The triangle school overlooks an inner circular court enclosed by a copper-clad rotunda (below). An oculus in the court brings daylight down to the cinema lobbies below (bottom). A dance studio on the top floor of the rectangular tower offers good views of the surrounding city (opposite).



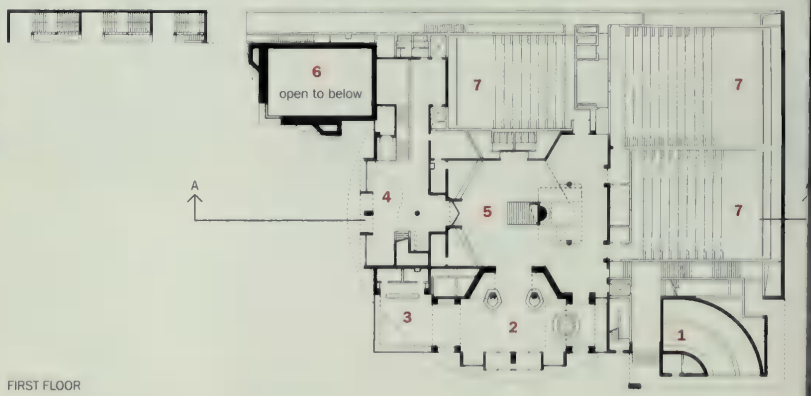




SEVENTH FLOOR



SECOND FLOOR



FIRST FLOOR

0 30 FT.
9 M.

1. *Parking entrance*
2. *Cinemaxx lobby*
3. *Cafeteria*
4. *Music school entry*
5. *Cinemaxx foyer*
6. *Chamber concert*
7. *Cinema*
8. *Music*
9. *Student canteen*
10. *Ballet studio*
11. *Faculty office*
12. *Court*

1. *Cinemaxx foyer*
2. *Cinema*
3. *Music*
4. *Court*
5. *Faculty office*



SECTION A-A

Situated housed in the same block as the Cinemaxx, the music school has its own entrance and lobby (below). The cinema's main lobby (opposite) is a grand three-story-high space. The cinema's upper foyer looks onto the school's court (bottom).





and a rectangular rooftop terrace on the dance academy's tower. With its chamfered corners and splayed concrete legs, the dance tower carries faint echoes of Stirling and Gowan's famous Leicester Engineering Building of 1963 (a project that Wilford worked on as a young designer in Stirling and Gowan's office).

Wilford's usual palette of rich colors is evident in the bright-orange mezzanine in the school's entrance lobby, the yellow and blue stuccoed external volumes, and the multicolored window reveals on the top two floors of the rotunda. The curving plans of the music-school floors allow them to be divided into wedge-shaped practice rooms, which enhances acoustics by eliminating reflections. Meanwhile, the dance academy's white tower provides a separate architectural identity and precisely the kind of large rectangular spaces that dancers need for rehearsing and performing.

A small chamber music hall occupies the basement of the tower, but the school lacks the kind of public concert hall that is a feature attraction of Wilford's larger music academy in Stuttgart. However, just such a hall is planned for a future phase of development behind the old school building.

Keeping the highbrow from movie-goers

Popular and high culture demand different interior treatments. While Wilford designed the interiors of the music and dance academy, he controlled only the basic forms of the cinemas spaces. Consequently, the cinemas' commercial decorative treatment is not his responsibility. It seems the cinema operators were afraid this multiplex would be, in the words of the manager, "too elegant." In other words, they did not want customers put off by a highbrow appearance.

With an eye to the future, Wilford designed this project so it could adapt to changing needs. Some fairly radical acoustic tweaking, for example, could turn one or more of the cinema spaces into a recital hall, and an expanded music-and-dance academy could take over the rest of the cinema building. You get the impression that Wilford and Kelner, his city client, are playing a long game. Cinema chains come and go: arts academies have a habit of sticking around.

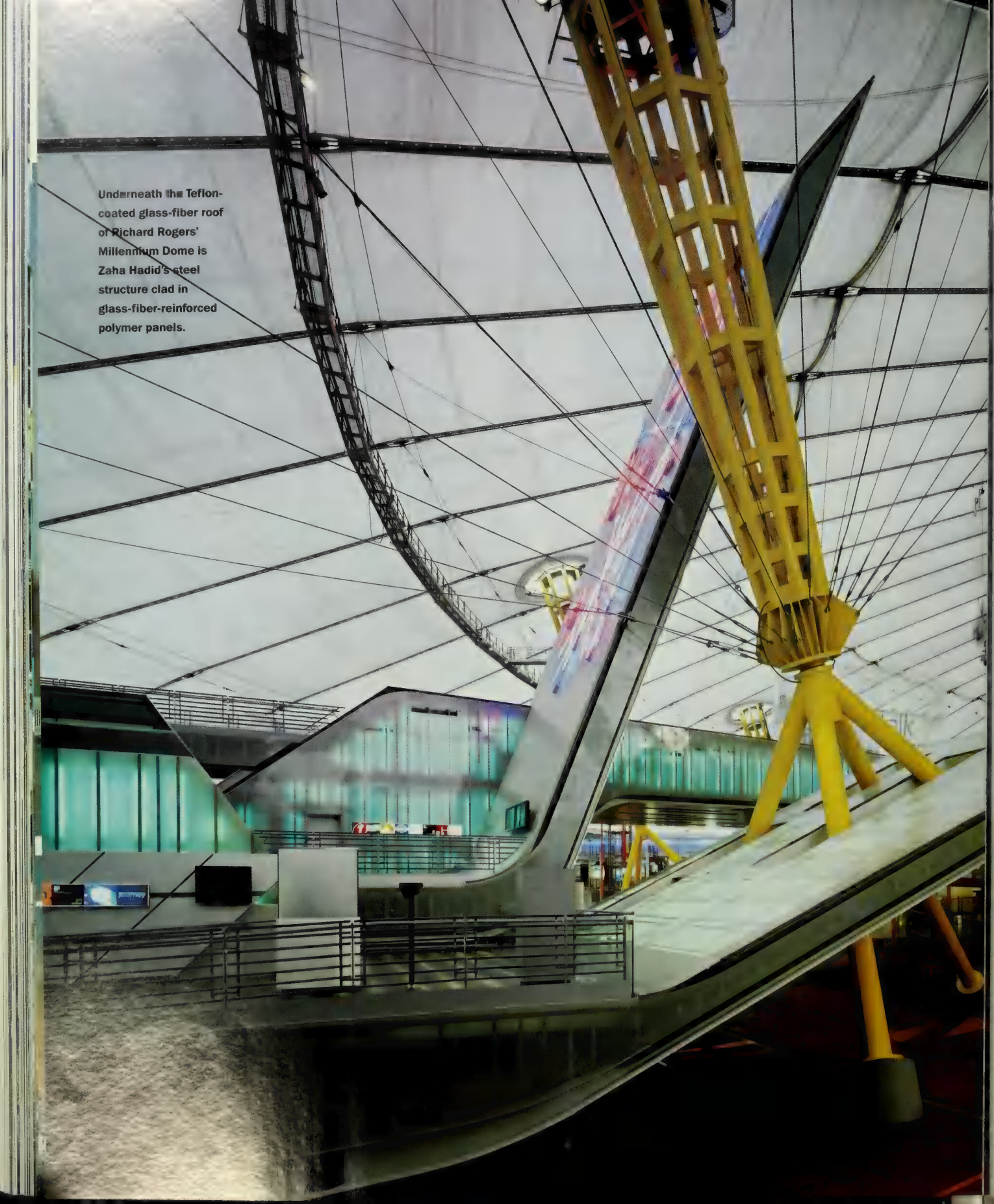
Already Wilford and his associates have drawn up plans to extend the public areas of the music school deeper into block N7, adding a concert hall and an adjacent terrace behind the old Siemens building and cutting a new public passageway to the street behind the arts complex. One remembers the events that unfolded in Stuttgart—the art gallery competition that led to a music school, then a library, and now possibly even a grand new landscaped public space. Wilford's open architecture, with its clearly expressed separate elements and its commitment to the public realm, seems capable of unlocking the minds of urban planners and municipal authorities in a way that insular, hermetic buildings do not. ■

Sources

Powder-coated metal panels: *Bugert, B+P*
Prepatinated copper: *KM Europa Metal AG*
Steel windows: *Janssen*
Aluminum windows: *Wicona*
Sound-control doors: *Neuform-Türenwerk*
Perforated plasterboard: *Jaeger Akkustik*
Dance-studio flooring: *Braig*
Interior ambient lighting: *Zumtobel Staff, Lemgo*
Interior downlights: *Louis Poulsen + Co.*
Cupboard walls: *Simon Schreinerwerkstätten*
Elevators: *Electronic Lift Thoma*

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Notting Hill



Underneath the Teflon-coated glass-fiber roof of Richard Rogers' Millennium Dome is Zaha Hadid's steel structure clad in glass-fiber-reinforced polymer panels.

ANALYSIS: Getting inside Zaha Hadid's MIND ZONE proves it's the spectacle of choice at the Millennium Dome.

By Deyan Sudjic

Britain's prime minister Tony Blair is still reeling from the savaging that his lottery-funded $1.5 billion Millennium Dome has had since its troubled opening on New Year's Eve. Even though Richard Rogers' dome—actually a cable-supported tensile structure—was originally hatched by Blair's Conservative predecessors, it has come to be seen as a politically charged starting point for Blair's reelection campaign [December 1999, page 78].

Intended to reflect glory on Blair's administration, the Dome simply couldn't get it right. Either it was so full that paying visitors had to wait in line two hours to see any exhibitions they judged worthy, or the dome was so empty that the predictions of 12 million visitors a year seemed unlikely to be met. The content earned special abuse. It was simultaneously far too lowbrow–and far too high falutin'.

To find Zaha Hadid's first major architectural work in Britain in the middle of all this comes as something of a shock. There it is, right next to the McDonald's-sponsored performance stage, a regrettable structure that bears an uncomfortable—and entirely deliberate—resemblance to a jester's hat.

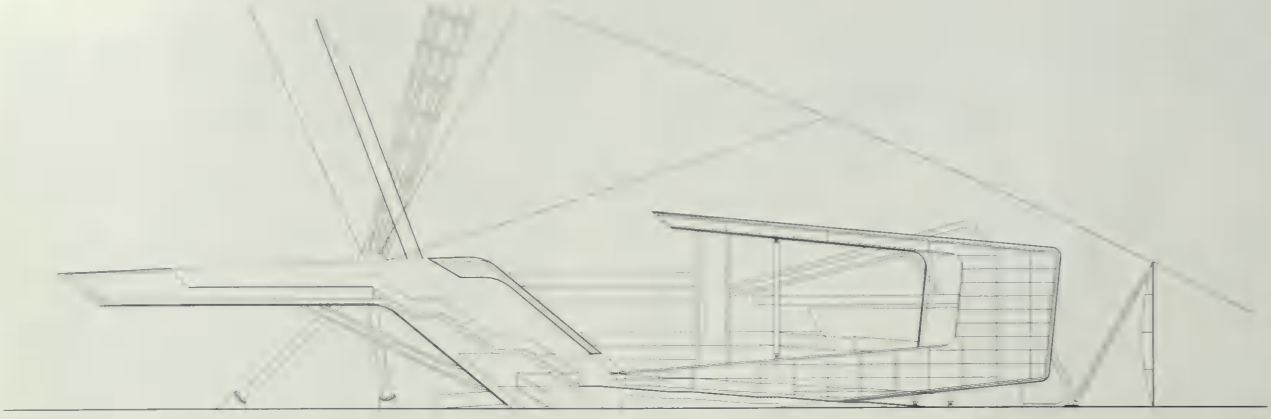
Hadid has built a three-level structure that looks big enough and striking enough to hold its own as a building. It could be a midsize art gallery, and with its battery of internal lifts, heavyweight structural steel, and translucent cladding, it certainly looks built to last. But despite its 16,140 square feet, it isn't a building. It's an exhibit, and when the dome eventually closes its doors, it is likely to be torn down. Hadid's zone, one of 14 zones commissioned for the dome, is dedicated to an exploration of the mind. And in among the failing interactive displays and the schlock of a state-sponsored attempt at fun—always likely to be a queasy compromise between education and half-baked spectacle—Hadid has come closer than most to keeping control, not just of the architectural composition but of the content, too. More to the point, she has maintained a sense of aesthetic integrity. She has not suffered in the way that Eva Jiricna has. Jiricna's elegant white structure on the other side of the Mind Zone from McDonald's has been fatally compromised by a crude and condescending installation on comparative religion, designed by others. Hadid, on the other hand, kept a tight hold on the Mind Zone content almost to the last moment.

For Hadid, the initial problem was how to represent the mind when its physical manifestation—the brain—is an inadequate signifier of its complexities. Working with art collector Doris Lockhart-Saatchi, Hadid commissioned a number of artists to create site-specific installations exploring various aspects of the mind. Richard Deacon marked the entrance with "How much does your mind weigh?", a piece made up of 24 interlocking wood cells. Langlands & Bell have made a giant neon wall of airport codes. The pavilion was conceived as a journey through and around these installations that explore both art and science. "Nothing is hermetically sealed, so neither art nor science is seen in isolation, without other

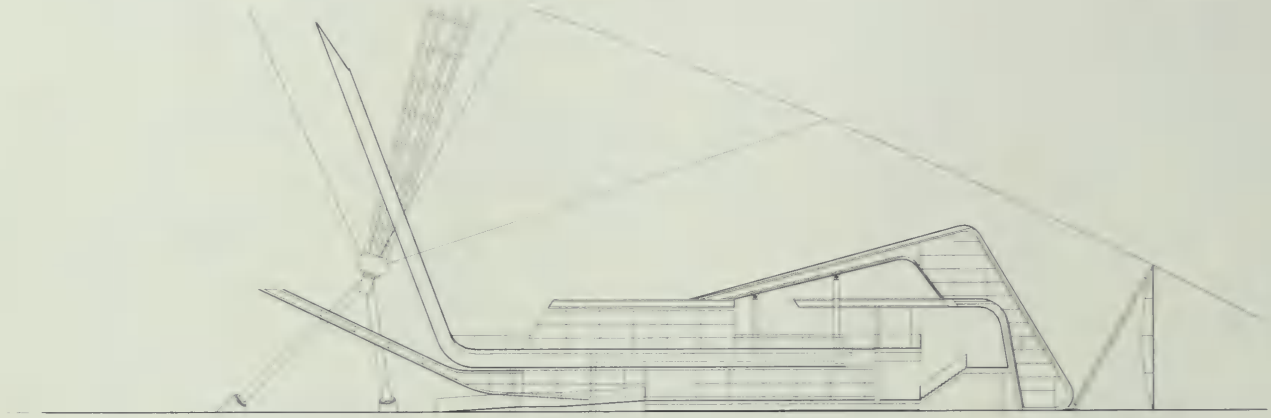
Deyan Sudjic, founding editor of Blueprint, *was director of "Glasgow 99, UK City of Architecture" and is architecture critic for the* London Observer.

Project: *Mind Zone, Millennium Dome, Greenwich Peninsula, near London*
Client: *New Millennium Experience Company*
Architect: *Zaha Hadid Ltd.—Zaha Hadid, design architect; Jim Heverin, project architect; Ana Sotrel, Graham Modlen, Christos Passas, Jon Richards, Paul Butler, project team; Patrik Schumacher, Barbara Kuit, Graham Modlen, Oliver Domeisen, curatorial team*





SECTION A-A



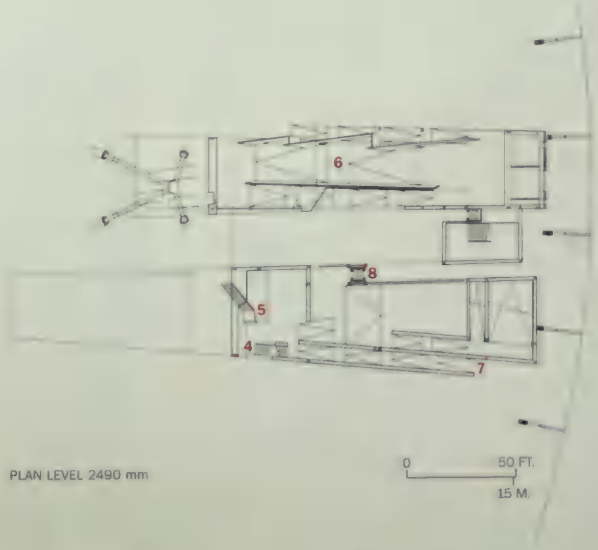
SECTION B-B

1. *Entrance*
2. *"What is a Mind?" exhibition*
3. *Emergency exit*
4. *Exit stair*
5. *Stair up*
6. *"Perception and Illusion" exhibition*
7. *Exit ramp*
8. *Elevator*

The 16,140-square-foot steel-framed pavilion uses timber-composite secondary trusses. The art installations, such as Ron Mueck's sculpture of a crouching boy (opposite), are placed within the ramped structure according to themes relating to cognition and perception.



PLAN LEVEL 830 mm



PLAN LEVEL 2490 mm

frames of reference," says Hadid. "Their very juxtaposition in the exhibit allows neither discipline the entitlement to a position. This takes away boundaries associated with both. The audience is free to explore the propositions and come to its own conclusions." That, at least, was the intention.

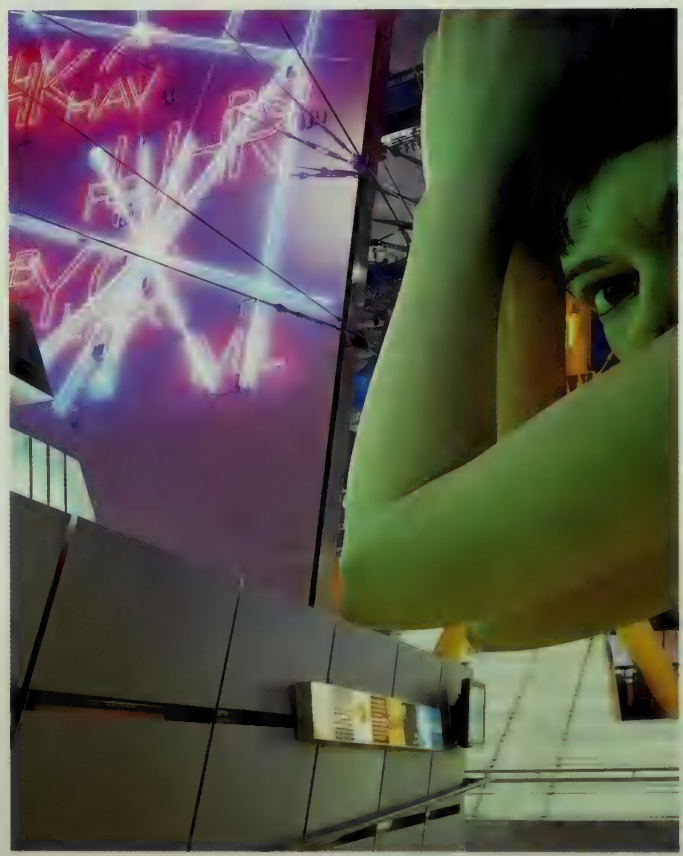
And the project very nearly comes off. As you follow the journey that Hadid has devised, you can for a moment forget where you are and experience a series of thrilling spaces and views. The structure is big enough and bold enough to stand up to the potentially overwhelming scale of the dome itself, which reads not so much as an overarching sky, but as a giant, attention-grabbing presence. The Mind Zone also holds up against the cluttered, haphazard, chaotic jumble of competing zones.

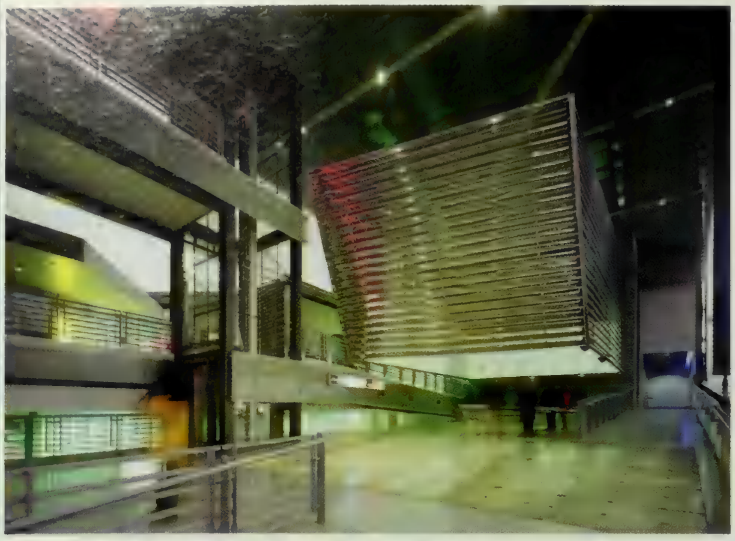
Through a shimmering curtain of back-lit, glass-fiber-reinforced polymer panels and translucent epoxy resin sheets, the dynamic structure zigzags back and forth in a series of dramatic leaps. You are sucked in through an entrance ramp, under the spreading shelter of

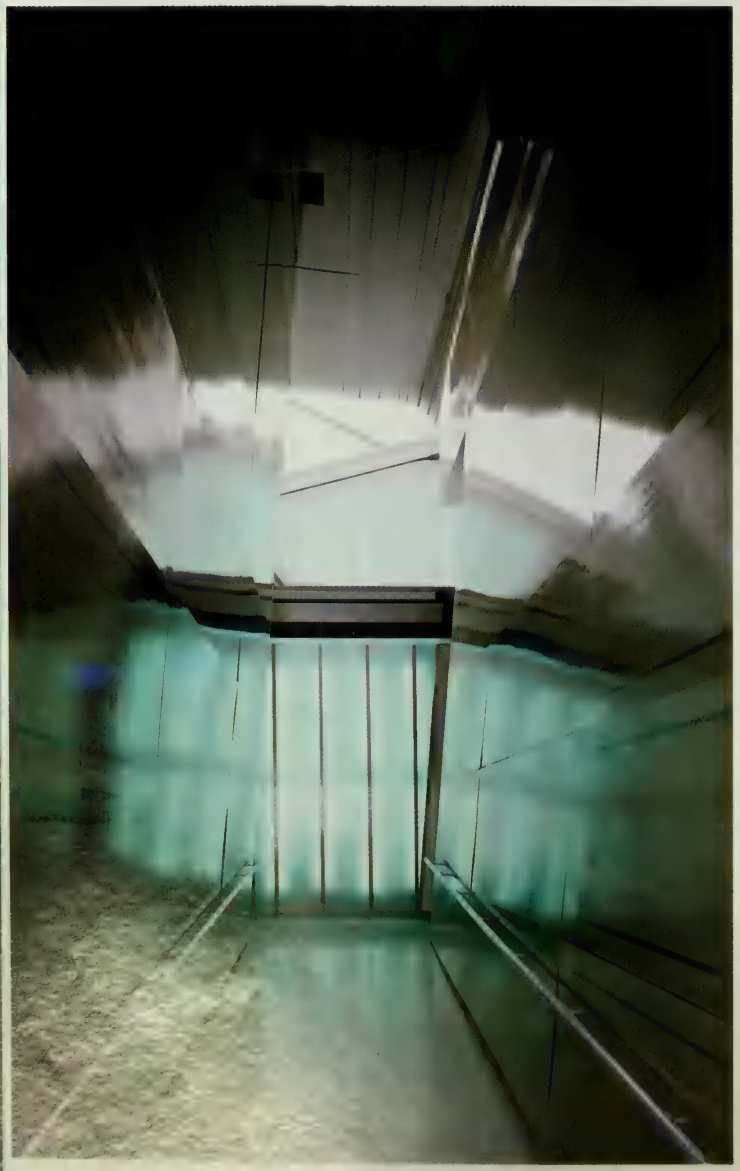
YOU CAN EXPERIENCE A SERIES OF THRILLING SPACES AND VIEWS AS YOU FOLLOW HADID'S JOURNEY.

Deacon's wood-cell sculpture. In the distance, you see a robot zoo. Then, the sloping ramps that drive you through the building take a sharp twist to the right, and you find yourself underneath a dizzying projection screen, showing a video by young Royal College of Art graduates who call themselves New Renaissance, offering yet another tribute to powers of 10. The ramp then shoots forward toward the center of the dome and offers a grandstand view of the huge void at its heart.

The procession of spaces moves on, past a giant sculpture of a crouching boy by Ron Mueck, through a sound room and doubles back







past a series of morphing screens, before taking you back down toward the floor. For an art gallery, it would be too energetic, and the presentation of the work has the effect of denying its artistic quality. From the way it is captioned and illuminated, it could be just another exhibition installation. But this is not an art gallery, and with the Dome's enormously ambitious goal of attracting 12 million visitors during the year, it could only attempt to offer a less subtle experience.

The preliminary design emerged from a model made by bending a strip of Perspex into a continuous structure of floors, walls, and ceilings; the result provides a fluid journey through a sequence of glass-fiber-reinforced polymer ramps and planes that seem to fold over each other. There is also a steep, cantilevered, ladderlike wall, 25 meters (82.5 feet) long, and a cantilevered bridge, 33 meters (109 feet) long.

Some of the conceptual ideas are very strong indeed. A series of epoxy-resin tubes winds its way through the pavilion, in which a colony of giant leaf-cutter ants, half a million strong and specially imported from Trinidad, has been installed. The colony, intended as a demonstration of social organization, has resolutely refused to emerge into view. Elsewhere, software glitches occur.

HANDRAILS THAT OWE NOTHING TO HADID HAVE BEEN INSTALLED EVERYWHERE AND SHARP EDGES BOXED IN.

Still more troubling has been the collision between Hadid's flashy architecture and the efforts by health and safety officials to defuse the structure's aesthetically explosive qualities. Handrails that clearly owe nothing to Hadid's design have been installed everywhere. The sharp edges have been boxed in with what looks like plywood, and slots in the translucent, internally lit, glass-fiber-reinforced polymer panels covered over, presumably to prevent the fingers of small children being thrust in them.

Toward the end of the installation process, when voters' positive reaction to the Dome became less certain, politicians hit the populist button as hard as they could. In response, the dome organizers insisted on taking a hand in the content on a more detailed level, in a way that fights with the exhibit's design and with Hadid's approach.

Don't forget, however, that it's not just Britain that can mess up these things when it come to expos. Think about New York's World's Fair in 1964—Robert Moses' less-than-happy swan song. Given the Expo's difficult task to assimilate so many conflicting viewpoints, Hadid has worked wonders in the most trying of circumstances, despite all the tampering. If only the Mind Zone could be liberated from its surroundings. ■

Credits (continued):
Artists/Exhibit Collaborators: *Neville Brody (Research Studios), Richard Brown, Nancy Burson, Brian Butterworth, Helen Chadwick, Hussein Chalayan, Richard Deacon, Escape, Ryoji Ikeda, Herbert Lachmayer (with Matthias Fuchs and Sylvia Eckermann), Langlands & Bell, Ron Mueck, New Renaissance, Urs. B. Roth, Gavin Turk*
Engineers: *Ove Arup & Partners (structural and building services)*
Consultants: *DCAb (cladding design); Hollands Licht (lighting)*
Construction manager: *McAlpine Laing Joint Venture*
Contractor: *Hypsos Expopartner*

Sources
Tensioned membrane for Millennium Dome: *Birdair*
Steel: *Watson Steel (contractor)*
Glass-fiber-reinforced polymer panels: *SP Offshore*
Epoxy-resin sheet wall panels: *SP Offshore*

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The Dome's steel masts shoot through the pavilion, dramatizing the entrance (below), while surfaces of epoxy resin and glass-fiber-reinforced panels give corridors, bridges, and elevators (opposite) an eerie glow.

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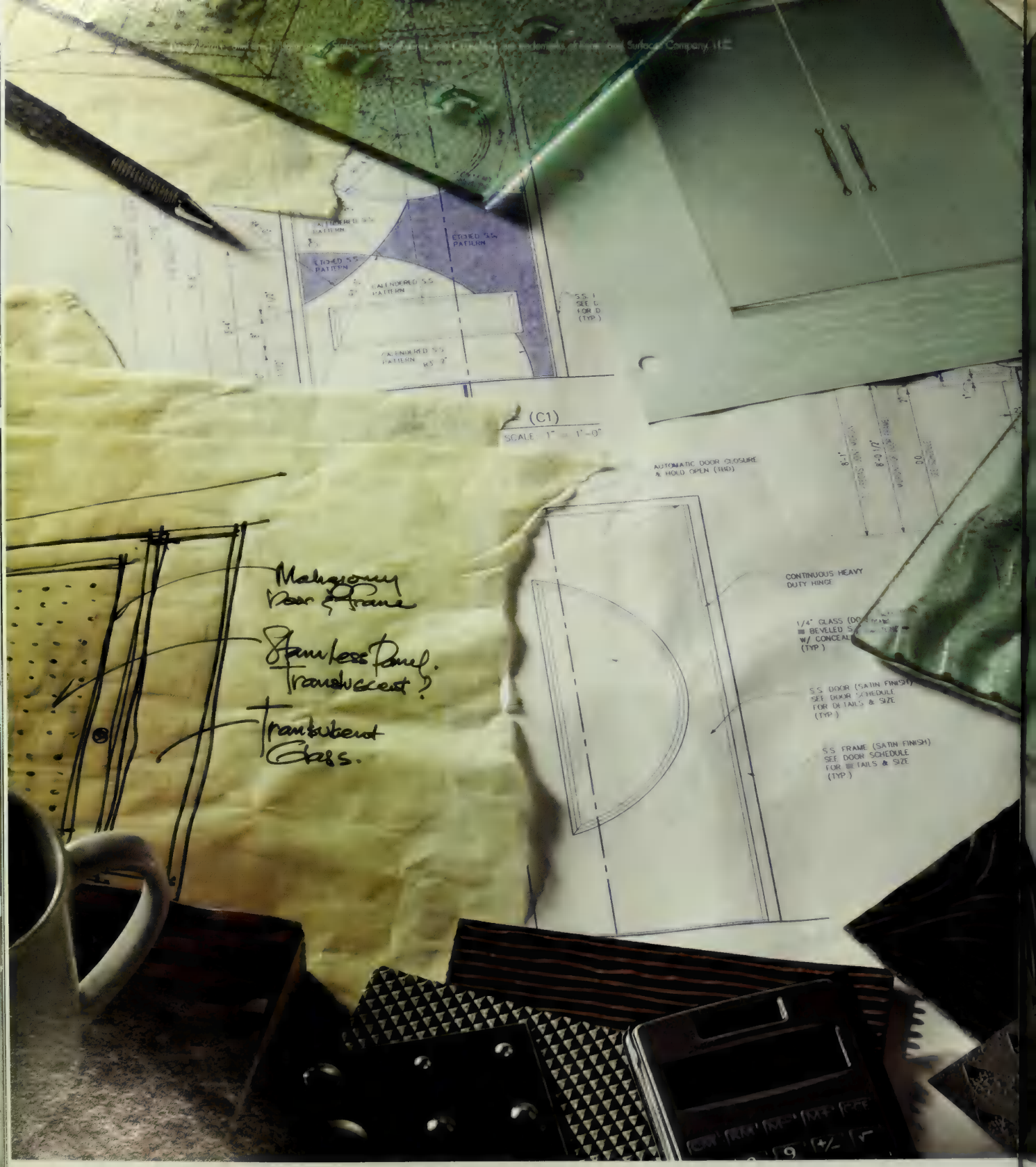
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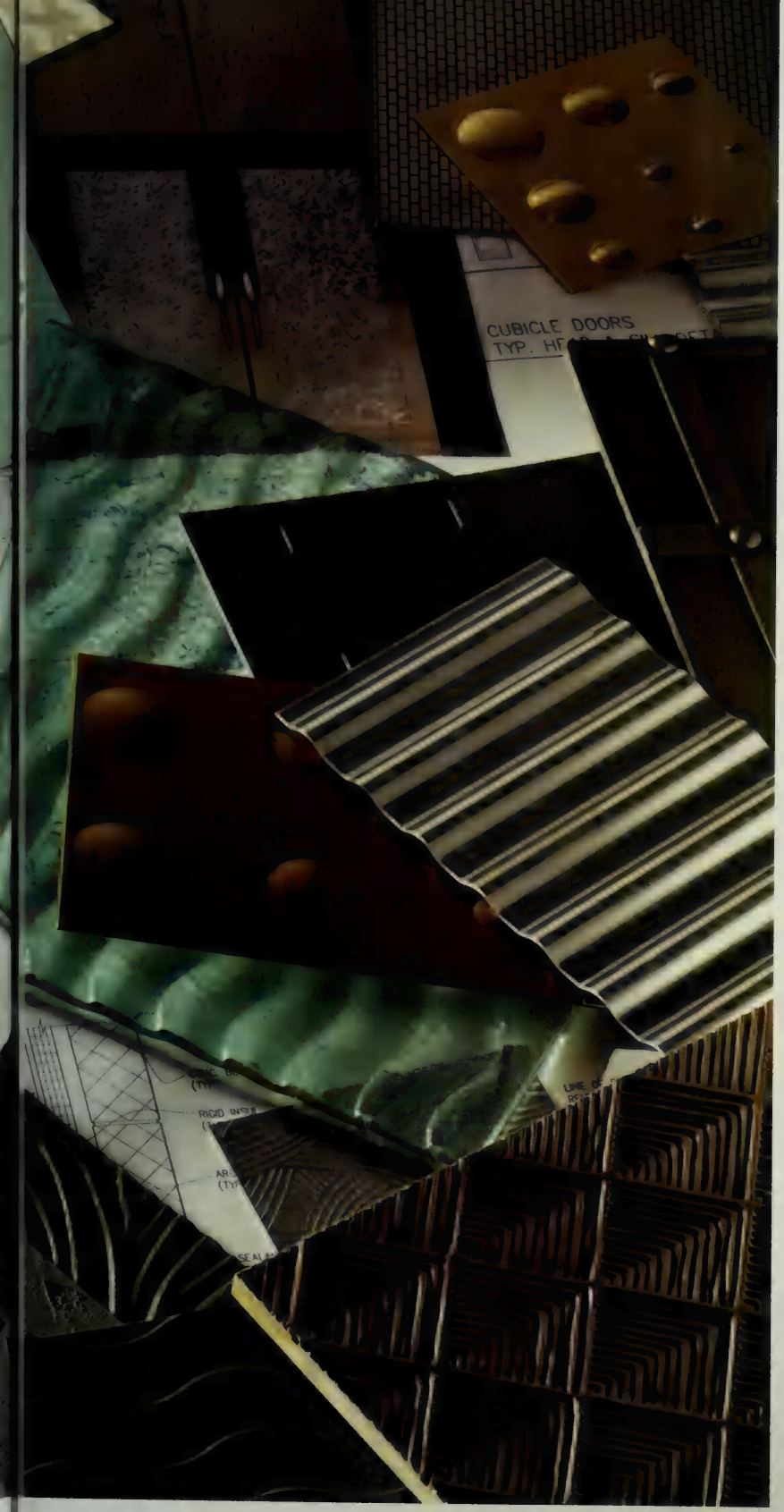
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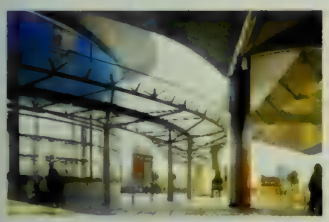
LONDON UNDERGROUND'S 11 NEW JUBILEE LINE STATIONS EVOKE MYSTERY AND WONDER BY FUSING ARCHITECTURE AND CIVIL ENGINEERING.



1.

Bermondsey

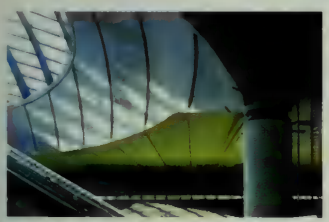
Ian Ritchie builds a glassy ticketing pavilion that gives way to a subterranean shadow world.



2.

Canada Water

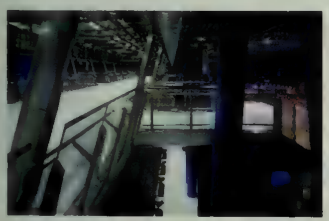
The Jubilee Line Extension Architects draws together two rail lines and a bus station with a glass pavilion that beckons from afar.



3.

Canary Wharf

In a concrete bathtub set in East London's watery docklands, Foster and Partners creates monumental splendor.



4.

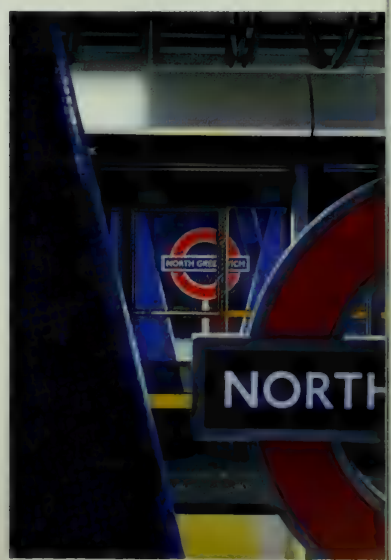
North Greenwich

Alsop & Störmer conjures a world of high-tech twilight in the shadow of London's Millennium Dome.

By James S. Russell, AIA

At Canary Wharf, passengers headed to the new extension of London Underground's Jubilee Line step onto a bank of escalators under the graceful curve of a glass-panel canopy. As they glide down to the ticketing level, a space of Basilican scale and calm opens before them, revealing the train platforms, 90 feet below grade. At the North Greenwich station, visitors to the Millennium Dome rise from platforms past what appears to be a stainless-steel boat hull hung between eerily lit walls of translucent-blue glass. At Bermondsey, fingers of daylight stab the platform edge through a web of beefy concrete braces. And at Westminster, escalators and stairs appear to pick their way through a Piranesian network of concrete columns and steel braces.

Ten London-based architects have transformed the prosaic civil-engineering palette of bored tunnels, cut-and-cover retaining-wall boxes, and floor braces into a (mostly) underground experience with qualities the passenger might least expect: wonder, mystery, even rugged beauty. It is no easier to build such complex structures to a high design standard in England than it is in America. The daunting engineering and astronomical per-mile costs of underground rail-transit systems make them a difficult endeavor under the best of circumstances. But boring the 10-mile line beneath a historic city shot through with existing subway lines and the fragile foundations of thousands of buildings can make a shambles of cost estimates and schedules (as indeed, in this case, it did).

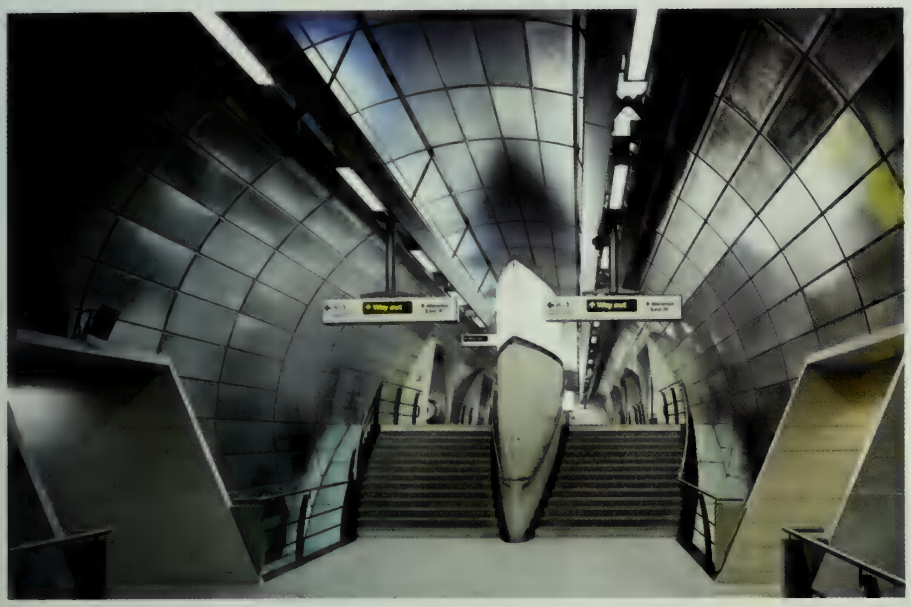


Once the concerns of landowners, citizens' groups, and politicians factor in, these kinds of projects, however badly needed, are often shelved as too ambitious. Earlier attempts to build an east-west line along the south side of the Thames River had failed because soil conditions much poorer than those on the north side had added to the usual impediments.

That's why completion of the Jubilee Line has been greeted as something akin to a miracle. One poll registered its popularity as greater

Wall-restraining ribs diffuse daylight in the serene, top-lit hall that greets transferring passengers at MacCormac Jamieson Prichard's Southwark Station.





Left: At Southwark Station, pylon-mounted beacons and stainless-steel panels evoke the orderliness of a submarine.

Below: Seating, signage, and track-edge doors by JLE Architects adapt to each station.

than Richard Rogers' dome. Nearly everyone involved lauds Roland Paoletti, the chief architect of the extension for London Underground, for making this excellence possible. "He let us rethink things from first principles," comments Shaun Russell of architect Alsop & Störmer.

RECORD has devoted an entire Building Types Study to the Jubilee Line [see also July 1999, page 114] not only to show the diverse means by which the design teams interpreted their similar yet highly complex assignments, but also to present the equally diverse ways that infrastructure can invigorate rather than (as is too often the case) blight communities.

Paoletti was brought into the project by London Underground in 1990. It had a new chairman, Wilfred Newton, and a new managing director, Dennis Tunnicliffe. Newton and Paoletti were well aware of the challenges—political, financial, urbanistic, and technical—that had to be met to get the extension built. But they had a plan, one that had helped Newton and Paoletti get 36 stations built in 12 years in Hong Kong. "You get the working drawings done and out to tender [bid]," says Paoletti, "By getting money and jobs invested in the project, the government finds it can't cancel it."

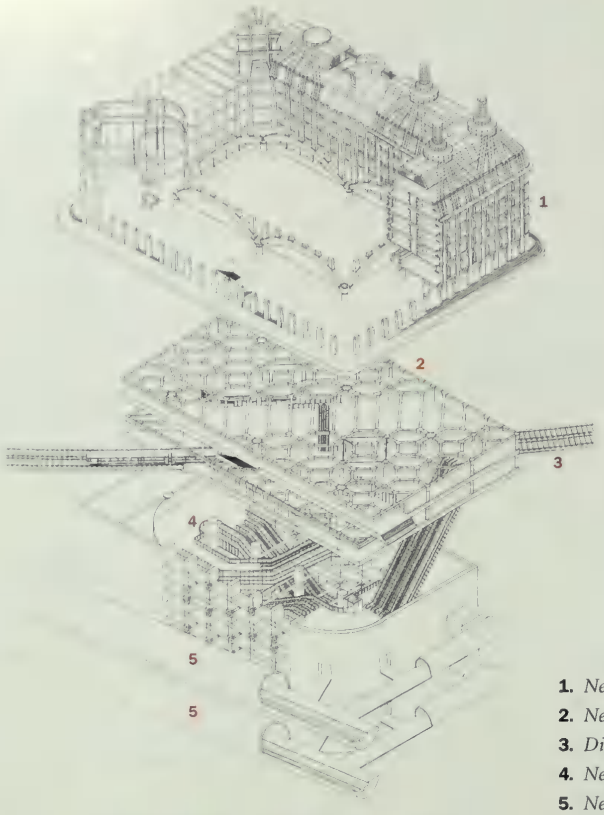
The Jubilee Line was administratively fenced off from the rest of London Underground to get drawings and bids ready in one-third the usual time. Paoletti also formed an in-house group, JLE Architects, to design systemwide elements, which later took on the entire design of two stations. Because of the credibility he had built in Hong Kong, Paoletti was given wide discretion in awarding the design contracts. It would have been typical to add architects to teams led by civil engineers. Too often, Paoletti says, the result is "labyrinthine tunnels, confusing layouts, and formless areas with palliative decorations." Instead, Paoletti hired architects to lead the teams. "Architects look at how to rethink engineering underground," he says, and he felt they would push engineers to discover more creative solutions. Not just any architects would do: "They had to speak engineers' language." At first, Paoletti could not recruit the architects he wanted. London Underground had long ago lost its design luster, asking architects to compete on a fee basis to slap tiles onto concrete boxes. He cajoled. They signed on.

Paoletti also had a clear vision: "I wanted the stations to be a fusion, one in which you could not tell where the engineering ended and the architecture began," he explains. "Each station is very different, but the common theme is making architecture of the heavy engineering."

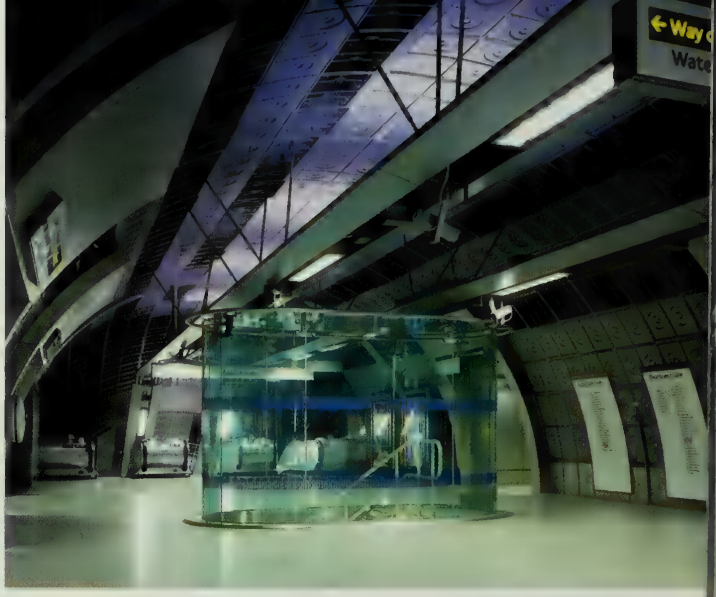
The impetus for the revival of the project was Canary Wharf, the American-style "new downtown" erected on the former docklands far east of London's traditional business center, the City. The Docklands Light Railway, added to serve the new office complex, proved woefully inadequate. Olympia & York, Canary Wharf's developer, promised to defray much of the cost of extending the line to the development.

By 1992, London Underground had bids and working drawings in hand, but the value of Olympia & York's vast portfolio of properties in



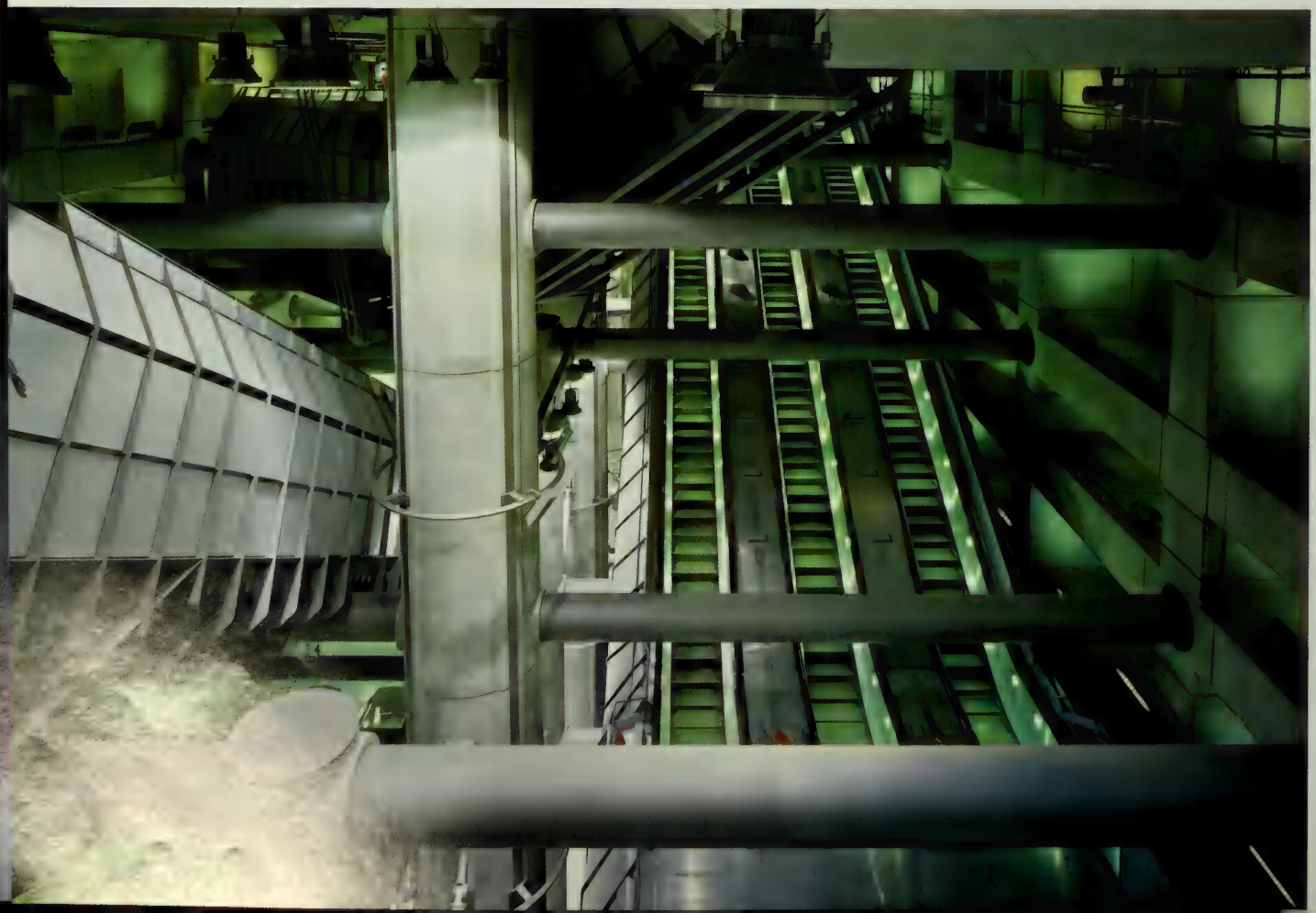


1. *New parliament building*
2. *New structure*
3. *District/Circle Line*
4. *New stair hall*
5. *New Jubilee Line*



Above: **The Jubilee Line's in-house-designed signage and lighting systems, used systemwide, hang from a metal-panel-lined tunnel at Waterloo.**

Below and top left: **Michael Hopkins' Westminster stair hall reveals the engineering viscera undergirding existing lines and Hopkins' Parliament building above the stacked Jubilee Line tunnels.**





Right: JLE Architects inserted contemporary elements among Waterloo Station's 19th-century vaults.

Below: Upper-level platforms cantilever from concrete piers in Troughton McAslan's Canning Town Station. Curved glazing protects stairs.

London and America was plummeting, a victim of commercial overbuilding. "The engineers around me were very jittery," says Paoletti. The Jubilee Line became instead the impetus for saving Canary Wharf and spurring regeneration of declining east London neighborhoods. It did not hurt that the bids had come in under budget and that an exhibition of the stations' design—as well as worldwide attention [June 1993, page 120]—brought a wave of public approval. The project went ahead.

The design teams knew in advance that some of the stations posed truly vexing conditions, calling for on-the-spot innovation. At Westminster, simply finding a place to carve a shaft for stairs, elevators, ventilation systems, and escalators taxed the team nearly to the breaking point.

Every proposed solution seemed to Paoletti like the dime-store game where you must tilt a board to nudge five tiny little balls into five equally tiny holes. In this project, he says, "when you got four balls in, the fifth would always pop out." To solve the problem, architect Michael Hopkins threaded stairs and escalators through a Piranesian network of columns and shafts that support a new diagonal grid structure aligned to the overpassing District/Circle Line (which was kept in service even as workmen dug underneath). The new support for the existing line, in turn, formed the foundations for a new Parliament building, also by Hopkins, which is under construction.

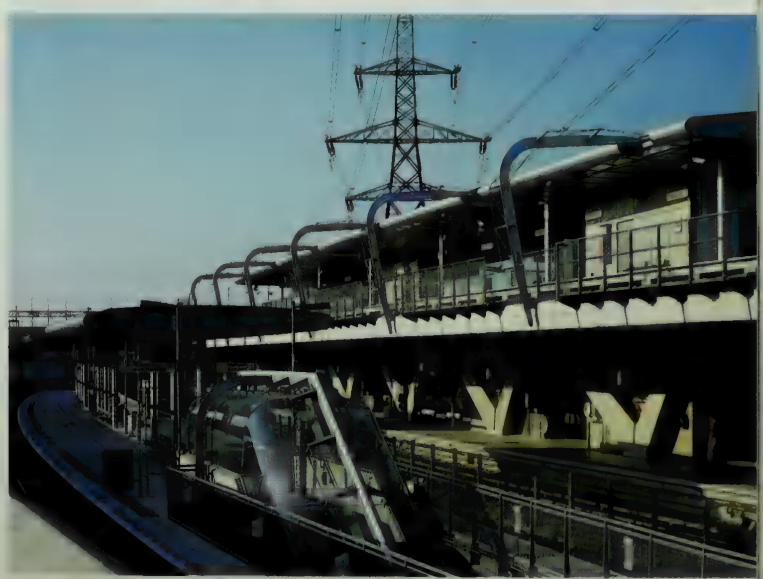
The stations at Waterloo (by Paoletti's JLE Architects) and London Bridge (by Weston Williamson, Architect) posed unique challenges, too, as they connected to commuter-rail stations housed under massive 19th-century iron-and-glass train sheds. "In pure engineering terms, these are the last places you should put stations, because they are built under crumbling Edwardian and Victorian vaulting and viaducts," explains Paoletti. He compares the delicacy of construction work required to open-heart surgery. The brick-vault, masonry-arch, and cast-iron architecture of the existing buildings frame the inserted concourses, which are infilled with a contemporary kit-of-parts consisting of cast concrete, glass panels bolted to tubular uprights, perforated metal panels, and direct and indirect lighting.

The all-new stations take far more diverse forms. A drum-shaped entrance leads to an expressionistically curving and inwardly canted masonry and blue-enameled-glass mezzanine in MacCormac Jamieson Prichard's Southwark station—a collaboration of the architect with artist Alexander Beleschenko and YRM/Anthony Hunt engineers. Brooding, backlit pylons beckon passengers to track level.

JLE Architects also completed Ron Herron's design for Canada Water and created key elements common to all the stations, such as new turnstiles, ticket windows, and suspended trays that unite signage, lighting, speakers, and alarms in one linear armature. Each element is in itself an authoritative piece of design that also adapts chameleonlike to the varied station environments. As contractors encountered a spectacular range of unexpected conditions, the project came slowly and expensively to completion late last fall, in time for the city's millennium celebrations. (The final cost is said to have been $5.4 billion.)

The success of these idiosyncratic designs comes because the designers listened to Paoletti's dictums, inspired by his mentor, Pier Luigi Nervi. The engineering, says Paoletti, should be "something more than it seems to be." And yet its clarity, with regard to way-finding and engineering, "should put the passenger at ease. Nothing in the architectural fit-out should look added on." Whether the success of the extension will embolden London Underground to take on other additions remains to be seen. The system is scheduled for privatization.

And what will Paoletti do now that his great work is done and he has collected a Cross of the British Empire? "I will stagger into the hospital and get the two new hips I've long needed," he replies. "Then I'll wait. Something will turn up." ■



Bermondsey
Jubilee Line Extension, London

1 **IAN RITCHIE BUILDS A LIGHT-FILLED TICKETING PAVILION, WHICH GIVES WAY TO A BROODING, SUBTERRANEAN PLAY OF SHADOW.**

By James S. Russell, AIA

Architect: *Ian Ritchie Architects—Ian Ritchie, Phil Coffey, John Comparelli, Simon Conolly, James de Soyres, Toby Edwards, Christopher Hill, Mark Innes, Toke Kharmpej, Ian Montgomerie, Raita Nakajima, Henning Rambow, Paul Simovic, Anthony Summers, Gordon Talbot, design team*
Engineers: *Sir William Halcrow and Partners (civil); Ove Arup and Partners (structural)*
Consultants: *Lighting Design Vienna (lighting); Paul Gillieron (acoustical); Charlie Funke Associates (landscape)*
Construction: *56-foot-deep box excavated for access, connecting to platforms installed in twin-bored tunnels*

Capacity: *4,000 passengers per hour*
Completion date: *1999*

Sources
Glass roof: *Seele*
Structural steelwork: *Rowen Ltd.*
Galvanized-steel escape stairs: *Britannia Fabrications*
Double-curved beam: *Van Dam*
Maintenance systems: *Atrium Gantries*

WWW *For more information on [illegible] involved in [illegible] Projects at: [illegible]*

Program
The smallest-capacity station on the Jubilee Line Extension, Bermondsey provides access to a densely populated neighborhood not previously served by the Tube system.

Engineering
The site was too small to dig a pit for the entire station. Instead, drillers brought the tracks to the station in standard 13-foot-diameter tunnels and then bored 23-foot-diameter tunnels to make room for the platforms (bottom). Contractors built a box containing shafts, escalators, elevators, and stairs from the top, casting a horizontal diaphragm slab to hold back the earth. The box was then dug and poured downward, with horizontal braces added to form a massive open-webbed truss. Where additional shafts were needed, they rise above ground clad in copper and swathed in plantings.

Expression
Ritchie is known for elegantly detailed glass walls, and for the entrance pavilion, he designed special clamp-on fittings (top). A translucent-glass roof over the stair hall drives daylight (directed by vertical metal blades under the roof) six stories down to track level. "We made Bermondsey a special station precisely because the environs were not," comments JLE Architects' Roland Paoletti. ■







Daylight sifts through horizontal exposed bracing trusses above the platform, which convey the subterranean force of earth bearing on the shaftway walls.

Canada Water
Jubilee Line Extension, London

2 **JUBILEE LINE EXTENSION ARCHITECTS BRINGS TOGETHER RAIL AND BUS LINES WITH A GLASSY PAVILION THAT BECKONS FROM AFAR.**

By James S. Russell, AIA

Architect: *Ron Herron Associates, preliminary design, executed by Jubilee Line Extension Architects—Roland Paoletti, Deirdre Lennon, Vivian Cummins, Chris Todhunter, Stephen Wright, Robert Birbeck, Robert Dowling, Phil Seaward, Tara Breen, Desmond Lavery, Andrew Green, Alan McGuire*
Engineer: *Benaim-Works Joint Venture (structural)*
Contractor: *Tarmac Construction*
Construction: *66-foot-deep, cut-and-cover box of reinforced concrete; bus canopy cantilevered from metal truss wrapped in glass*

Capacity: *6,700 passengers per hour*
Completion date: *1999*

Sources
Boom systems, ceilings, and specialty metal: *Astec*
Collapsible gates to entrances: *Bolton Gate Co.*
Road-edge balustrades: *Hollaender-Rainier*
Glass: *Marcos Summers*
Profile-sheet roofing: *Barry Collum*

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Program

The Jubilee Line Station at Canada Water had to act as a beacon, calling itself out amid an amorphous landscape of crumbling industrial sheds and low- and high-rise housing projects. Above grade, a canopy for connecting bus lines was required. Inside, the station had to offer a clear means of conveying passengers from street level to the existing East London line, then down another level to the Jubilee Line tunnels.

Engineering

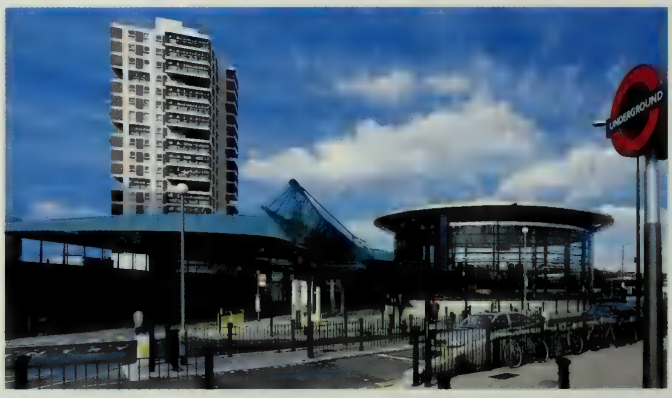
Most of the below-ground areas were created using conventional cut-and-cover, reinforced-concrete construction. One area was built top down, beneath a site-cast slab, to minimize disturbance to neighbors.

Glass-roofed canopies, supported by tubular trusses branching from a single row of columns (opposite top) protect passengers as they enter the drumlike entrance pavilion (right in top photo).

The metal-clad canopies for the bus station (left in top photo) cantilever from a square "beam" built up from rods and cables, tipped on its edge, and wrapped in glass.

Expression

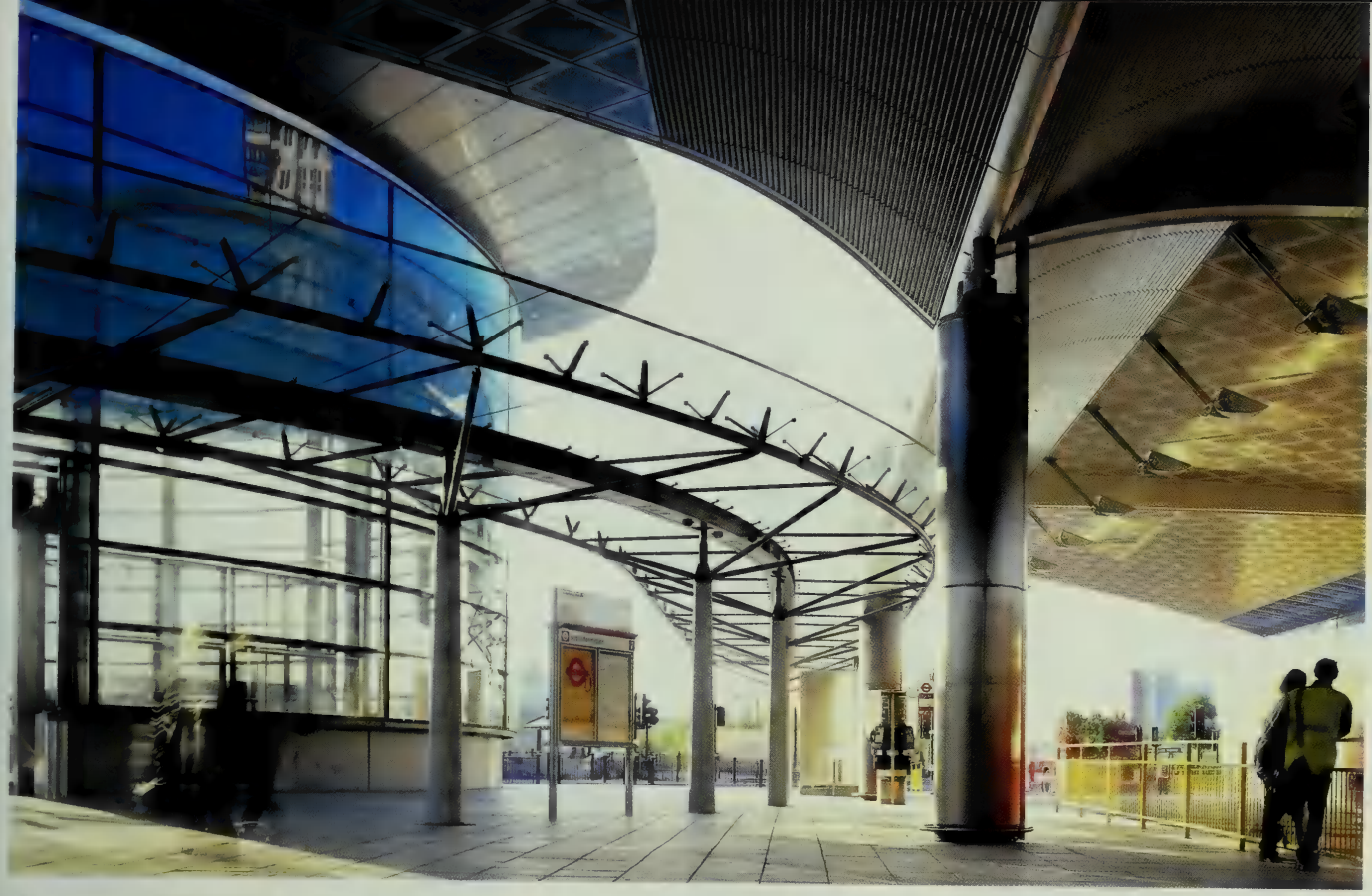
[illegible]nternlike glazed drum of the [illegible]g pavilion signaling the pres[illegible] the Underground line "has c[illegible]tatus almost overnight,"

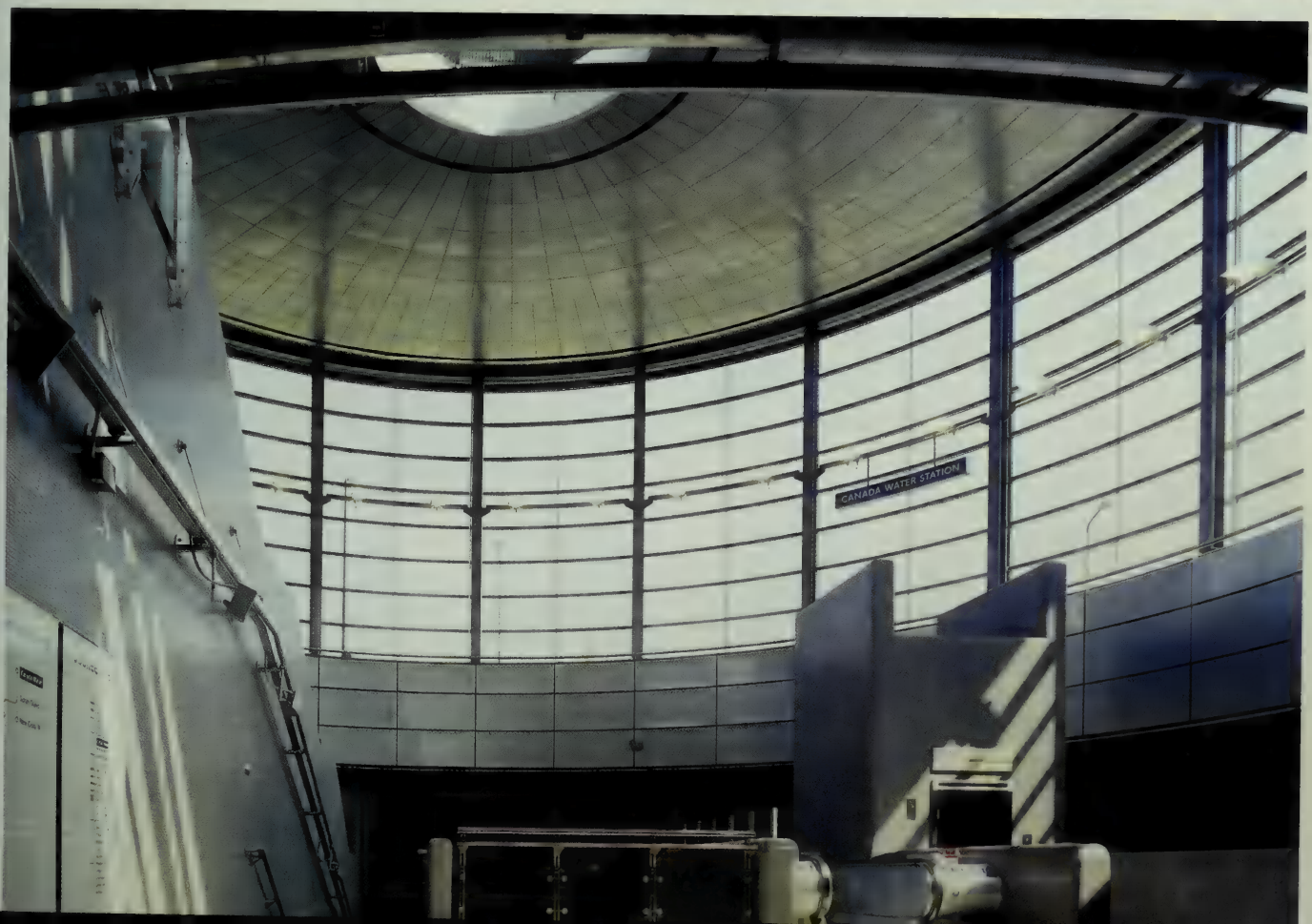




says JLE Architects' Roland Paoletti. The glassed-in truss supporting the bus canopy refracts daylight into the usually dim recesses of the bus-loading area.

Elevators and stairs are massed under the entrance pavilion in an abstract sculptural composition (opposite bottom). A curving wedge of space unites the two below-grade lines. An oval opening divided by columns leads travelers to the existing East London line. Another similar stair drops one level more to the new Jubilee Line. Daylight from the ticketing hall penetrates to the new platforms (above). ■




CANADA WATER STATION

Canary Wharf
Jubilee Line Extension, London

3 **FOSTER AND PARTNERS DESIGNS A STATION OF MONUMENTAL SPLENDOR SET WITHIN A CONCRETE BATHTUB FLOATING AMID THE WATERY DOCKLANDS.**

By James S. Russell, AIA

Architect: *Foster and Partners—Norman Foster, HON. FAIA, David Nelson, Gerard Evenden, Rodney Uren, Richard Hawkins, Ross Palmer, David Crosswaite, Armstrong Yakubu, Chris Connell, Toby Blunt, Charles Diamond, Glenis Fan, Lulie Fisher Mike Greville, Lee Hallman, Caroline Hislop, Eddie Lamptey, Stuart Latham, Muir Livingstone, Niall Monaghan, James Risebero, Danny Shaw, Tim Shennan, design team*
Engineers: *Posford Duvivier, De Leau Chadwick (civil); Jubilee Line Extension Project (mechanical, electrical); Ove Arup & Partners (structural)*
Consultant: *Claude Engle (lighting)*
General contractor: *Tarmac Bachy Joint Venture*

Construction: *Reinforced-concrete cut-and-cover construction*
Capacity: *16,000 passengers per hour*
Completion date: *1999*

Sources
Metal canopy: *Mero*
Waterproofing: *Ruberoid Contacts, Services*
Glazing: *ISIGLASS*
Entrance, sliding doors: *Hüppe*
Escalators, elevators: *Kone*

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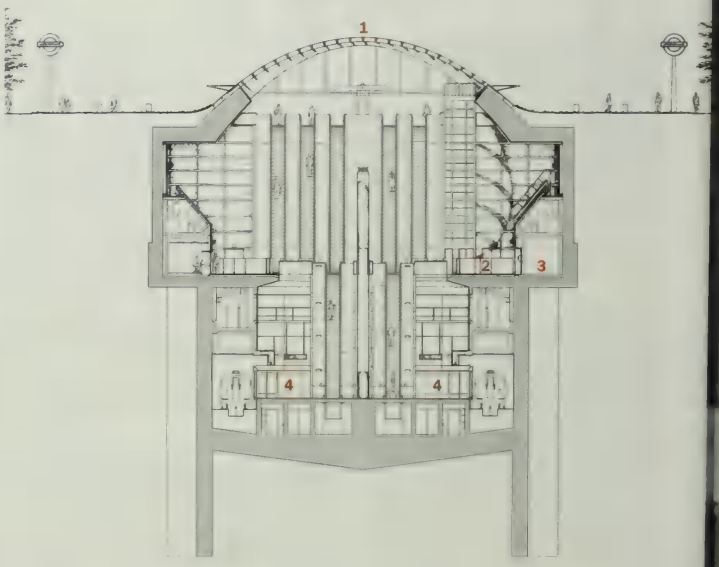
Program

Improving access to Canary Wharf, what may one day be one of Europe's largest business centers, was key to getting the entire Jubilee Line Extension funded. Located just south of the dense core of Canary Wharf, the station has the highest capacity of any along the new line. A predicted 16,000 passengers per peak hour in early years may ultimately rise to as many as 40,000.

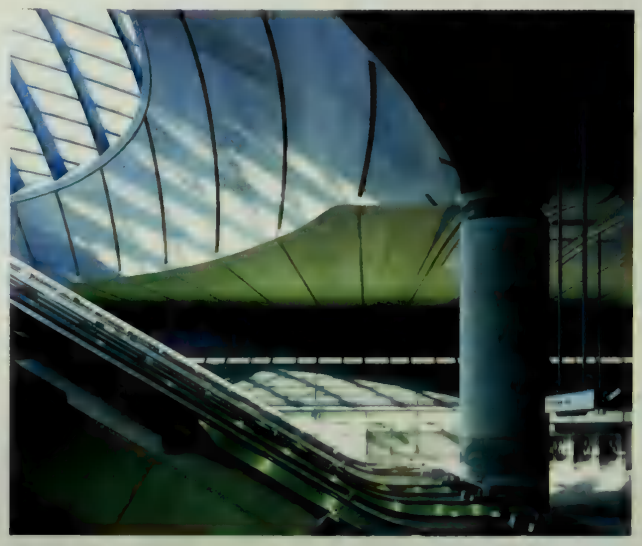
Engineering

Because the station location is surrounded by inlets of the Thames River, dewatering and waterproofing were among chief engineering concerns. Twin-wall coffer dams formed a kind of bathtub. Then 160,000 tons of water was pumped out to create a foundation bed. Dewatering wells kept the drained area from flooding throughout construction. Dozens of deep piles anchor the base slab of the station, resisting 220,000 tons of water pressure. T-shaped, 85-foot-deep diaphragm walls formed the outer retaining-wall enclosure of the station.

Inside the station, a single row of cast-in-place columns support site-cast, concrete roof panels (opposite). Elliptical bearings at the column capitals move in response to geological pressures. Steel-and-glass canopies (right) swell in a gentle curve to protect the three entrances.



1. *Glass and metal canopy*
2. *Ticketing level*
3. *Shops*
4. *Track level*



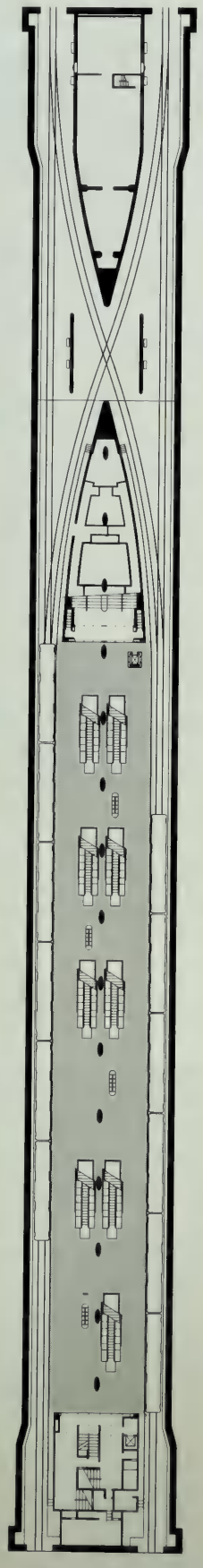


For the largest and loftiest of the new Jubilee Line stations, Foster and Partners inserted generous stairway openings at the ticketing level to convey the structure's openness all the way to platform level.


↑ Jubilee line

A single row of columns conveys the monumentality of the station without making its underground realm seem oppressive. Daylight seeps in at either end through glass entrance canopies over the main stairs.





PLATFORM LEVEL N←

Expression

Passengers entering the Canary Wharf station pass under one of three elegantly arced canopies of glass panels mounted on curving steel frames. A park covers the rest of the station. Though large, the canopies only hint at the vastness of the space below, which gradually opens to its 300-yard length and 115-foot width from an intermediate ticketing level. The center of the ticketing level is left open at the eastern portion of the station length, leaving the platform level open to the structure's full 75-foot height. The station's large capacity requires 20 escalators to serve it. An equally massive set of exit stairs is located at either end of the station, along with fresh-air, exhaust-air, and elevator shafts. Shops wrap the long edges of the hall on the ticketing level.

The openness of the design aids way-finding, thus minimizing the need for signage. The impressiveness of the station is no accident, according to Paoletti. "We spent much more on some stations than others. We spent a great deal on Canary Wharf to indicate that its special nature within this high-rise skyscraper district was to do for Canary Wharf what the Opera House did for Sydney. On a unit basis, we may have spent more at Bermondsey and Canning Town, but that's because those are down-and-out areas."

While improving access will no doubt benefit these communities, Paoletti sees the architecture itself as a kind of beacon of urban renewal—both because it establishes a new higher standard of construction in struggling neighborhoods and as a point of pride for residents. Whatever the spending levels, "none of the stations looks poor," explains Paoletti, "just different." ■

North Greenwich
Jubilee Line Extension, London

4 **ALSOP & STORMER CONJURES A WORLD OF HIGH-TECH TWILIGHT IN THE SHADOW OF LONDON'S MILLENNIUM DOME.**

By James S. Russell, AIA

Architect: *Alsop & Störmer—Will Alsop, Christopher Egret, Peter Angrave, John Smith*
Engineer: *Benaim Works Joint Venture*
Contractors: *McAlpine Wayss & Freytag Bachy Joint Venture (general), Drake & Scull (electrical and mechanical)*

Capacity: *12,000 persons per hour, more if the second entrance is constructed*
Construction: *Concrete cut-and-cover*
Completion date: *1999*

Sources
Stainless-steel cladding: *Darchem Engineering*
Blue-glass wall: *T&W Ide*
Steel and glass balustrades: *D&B Darke*
Public-area ceilings: *Architectural Feature Services, Diamond Project Services*
Terrazzo: *AW B. Simpson & Son*

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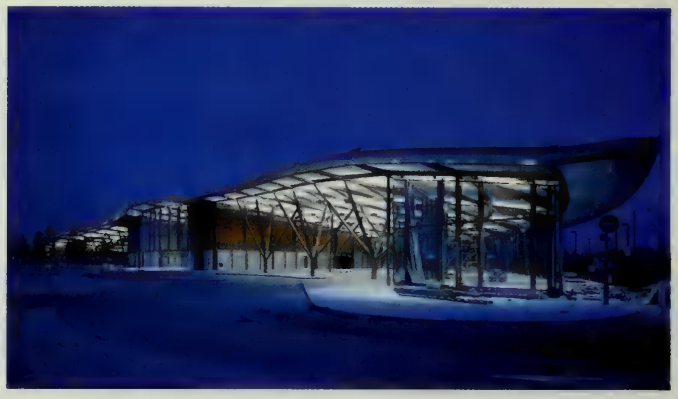
Program

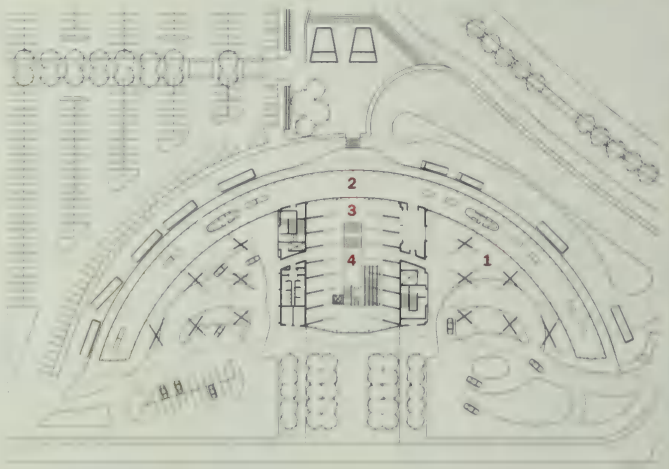
At the time of design, the emptiness of the North Greenwich peninsula seemed vast: It was a "brownfield," where the empty stacks of a gas works, one of London's largest industrial complexes, had once flared. The stop, not originally planned for the line, was added with financial contributions from British Gas to spur redevelopment. It also accommodates a third tunnel for a planned branch line.

Only later would the presence of the station prompt planners to choose this site for the Millennium Dome. Now, an Underground Station that bears more than a little resemblance to its site's earlier occupant pulses below London's new star attraction. Passenger capacity can grow, if necessary, by opening a second entrance, which was originally planned but never built.

Engineering

With ample open ground, conventional cut-and-cover construction proved to be the most straightforward solution. Because of its adjacency to two of the line's under-river crossings, the station is 82 feet deep. It is also unusually wide to fit the third tunnel. At one time, Alsop & Störmer conceived the ticketing level as open to the sky. The designers peeled away its edges and supported it on massive criss-crossed horizontal braces, which would express the forces pressing

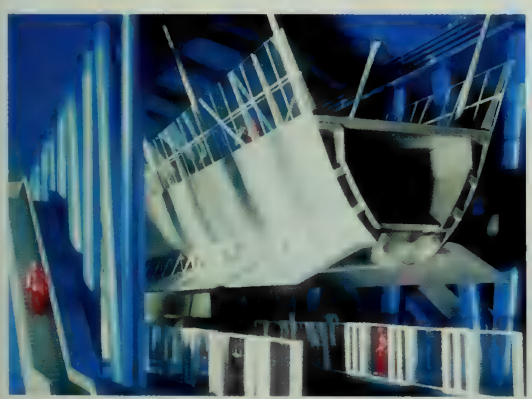


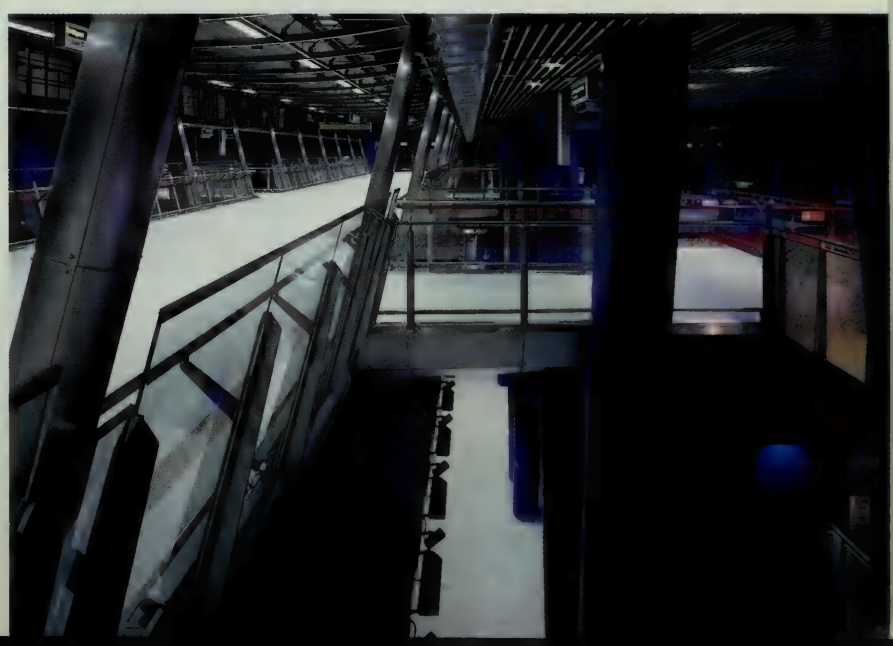


Instead of a glazed roof, the North Greenwich Station received a bus-transfer facility (photo and plan above) procured by a separate contract. It was designed by Foster and Partners.

1. *Auto drop off/pickup canopy*
2. *Bus waiting canopy*
3. *Lobby*
4. *Access to Underground station*







Top: Platform with protective sliding doors.
Right: Ticketing level.
Above: Model showing suspension system.



The stainless-steel-wrapped ticketing level looks like a conveying device slipping through the blue-tile-clad supports. By pulling the mezzanine into the center of the space, the platform level opens up all the way to the roof.



against the station's outer walls. Not only would passengers easily find their way to track level, but the scheme would also allow daylight to thread its way through the suspending structure to the platforms. Ultimately, the structure was beefed up to accommodate an air-rights structure over a solid roof, and a bus station and park-and-ride lot were built.

Though the earlier scheme was discarded, some of its elements found their way into the completed design. Two rows of inclined columns run the length of the platform, supporting a massive roof above the ticketing-level mezzanine (model, previous page). The hull-like shape of the underside of the mezzanine encloses smoke-extracting ductwork; winglike appendages direct the flow.

Expression

With its partially exposed galvanized-steel ceilings, suspension cables, and braces, North Greenwich evokes a high-tech world of shadows. The architect further dissolved the station's apparent edges by backlighting blue-tinted-glass sidewalls. Concrete enclosing walls and the inclined ovoid concrete columns were clad in blue mosaic tile. In contrast, the mezzanine suspended within the enclosure was faced in stainless steel. ■

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Crossing Safely to the Other Side

FOUR CASE STUDIES ILLUSTRATE METHODS FOR DESIGNING ONE-OF-A-KIND PEDESTRIAN BRIDGES

By Wendy Talarico

A bridge, whether a tree spanning a creek or something as sophisticated as Santiago Calatrava's Alamillo Bridge in Seville, Spain, is perhaps the purest of structures, expressing its purpose in each connection and member. Traditionally, bridges fell in the realm of the engineer, as structures ruled more by technology than design. But in three of the four pedestrian bridge case studies that follow, they represent collaborations between architect and engineer—and the resulting back-and-forth process—that yield the most graceful solutions.

Engineers give a bridge purpose and make it effective; architects give it expression. "The engineering is the basis for the architecture," says New York-based Wendy Evans Joseph, AIA, who created the Rockefeller University Bridge with local structural engineer Matthys Levy of Weidlinger Associates. Levy and Joseph worked more closely on the bridge than they might have on a building. That's typical of bridge design, says Levy. "Still, the form is inspired by many other things as well, such as the neighborhood, the historical context, and who the users will be," says Joseph. "This bridge couldn't have been built anywhere else."

Jim Eyre of London-based Wilkinson Eyre Architects, who designed the Lockmeadow Millennium Bridge in Maidstone, England, agrees that pedestrian bridges, more than vehicular ones, must respond to their surroundings. "They are closer to the landscape and the buildings," he says. "The people who use the bridge must feel it is a part of the community."



I. M. Pei's Miho Museum footbridge in Japan conducts visitors from a tunnel across a 400-foot span over a canyon approximately 100 feet deep.

Special structures

In the world of bridges, those intended for people instead of vehicles are considered specialty structures. They use a hybrid of design and safety standards from many sources, including guidelines for vehicular bridges and the Americans with Disabilities Act. Recommendations for load, deflection, vibration, and connections are contained in specifications developed by the American Association of State Highway and Transportation Officials (AASHTO) in Washington, D.C. This organization draws its members from the Federal Highway Administration, state highway and transportation agencies, and private businesses.

AASHTO also writes vehicular-bridge standards, which include safety recommendations for bridges with walkways. These recommendations are referenced in the pedestrian specifications. For example, balusters must be spaced close enough that a 6-inch sphere cannot pass between them.

If a bridge is privately owned, adherence to these standards is optional, though it does offer a way for architects to limit their professional liability, says a spokesman for the Federal Highway Administration. If a pedestrian bridge is in the public domain, however, designers must typically meet the standards or even exceed them.

State or local highway agencies often modify AASHTO standards (which are considered minimums) and add their own safety requirements. For example, if a bridge is open to the public, it must have guardrails of a certain height—usually 42 inches. (If bicycles are allowed, the handrail height requirement is raised to 54 inches.) Some states are more stringent than others; in parts of New York State the minimum height is 60 inches. Wire mesh, wrapped from one side of a

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 160 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe the design standards that govern pedestrian bridges.

2. Discuss the pros and cons of various bridge construction methods and materials.

3. Identify the objectives of pedestrian bridge design for communities and how they affect architects.

[illegible], is often required by localities on pedestrian bridges spanning roadways to prevent people from throwing objects onto the street.

Design is also governed by the Americans with Disabilities Act, which dictates the slope of access ramps, shape and size of handrails, and minimum widths for the deck .

Types of bridges

Most architects have a good working knowledge of basic bridge design. The bridge case studies in this article, except for the Duisburg Bridge, are cable-stay, which means the deck is supported by cables stretching from a tower, usually in a fan array. A suspension bridge, by comparison, uses hangers or suspenders, radiating from a bridge cable, to support the deck. The configuration of the cables and the towers that support them is determined by the bridge's weight and factors such as pedestrian and wind loads. The Duisburg is a suspension cable bridge that is backanchored (or backstayed) to make it arch.

Cable-stay and suspension bridges are two of the most economical design types, according to Mike Abrahams, a structural engineer and manager of the structures department at Parsons Brinkerhoff, an architecture and engineering firm in New York City. Without a lot of infrastructure beneath the deck (such as that required by arch bridges), the cable-stay configurations are more slender than truss or arch bridges and can be lower (and shorter) while still achieving minimum clearances. "The thinner structure," he adds, "is also more elegant."

A more recent trend, particularly in Europe, favors pedestrian bridges with innovative structural combinations. Examples of these engineering hybrids include a pedestrian bridge in England that floats on steel tanks but still has the ability to pivot, thanks to hydraulically controlled cables. Other bridges combine cables, supporting arches tipped at varying angles, and complex trusses, as well as curves and operable features, as does the arching Duisburg Bridge.

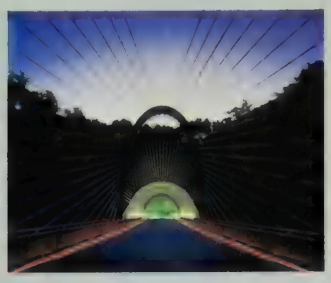
"The pedestrian bridge is a smaller, lighter structure than a vehicular one. You can do more interesting, dramatic things and be more creative with a pedestrian bridge," Abrahams says. At the same time, the "signature bridge," a one-of-a-kind structure, is becoming popular as an icon that represents a community. This was certainly the case with the Lockmeadow Millennium Bridge. While this structure sought to blend with its historic surroundings, it was also meant to signal visitors' arrival.

What's it made of?

The materials used depend on the location of a bridge, how well maintained it will be, its span, the amount and type of traffic that it must carry (some pedestrian bridges support vehicles), and, of course, aesthetics. Local regulations and concerns about vandalism and safety may affect the choice of materials.

In general, concrete is easier to maintain than steel, which must be painted. It is difficult, however, to achieve artful forms with concrete. Stainless steel, which doesn't need painting, is good for details and railings. Aluminum is light and strong, but often too [illegible] and stone are wonderful for small spans, but expen[illegible]ully for large ones.

[illegible] the fact that deck materials should be nonslip, low-[illegible]ce and weather-resistant, there are few limitations. [illegible] and epoxy can all work well. Panels are often required [illegible] to the infra- *continued on page 158*



CASE STUDY

Miho Museum Bridge

Architect: *I. M. Pei, New York City*
Engineer: *Leslie E. Robertson Associates, New York City*

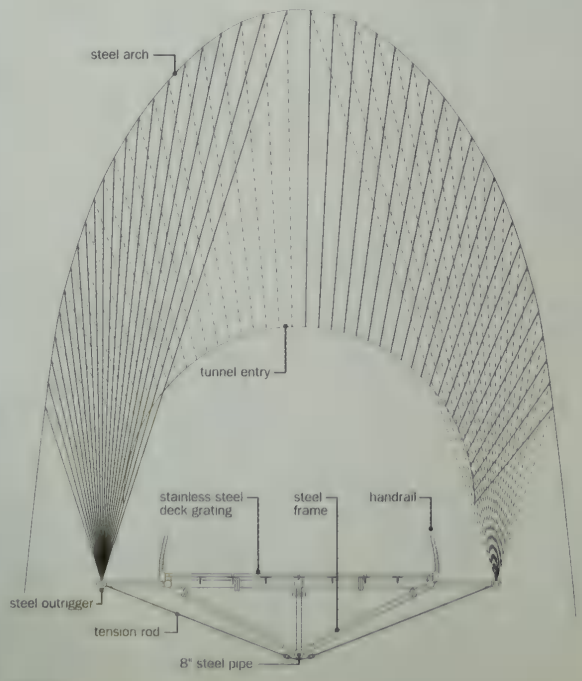
I. M. Pei, FAIA, tells a well-known Chinese fable about a fisherman who blunders into the entrance of a secret ancient community while wandering through a peach orchard. He spends a magical afternoon with the inhabitants but, once he leaves, never again finds the entrance. "My client knew this story well," Pei says of Mihoko Koyama, one of the leaders of a large spiritual association in Japan. "When I told her I was thinking of this while designing the passage to the Miho Museum, she smiled."

Entry to the museum, about an hour from Kyoto, requires crossing a sacred canyon, which had to remain untouched. Pei needed to find a way to bring visitors from the parking area, a half-mile away from the site, across the canyon. His solution: a curving, stainless-steel-lined tunnel that opens onto a cable-stay pedestrian bridge.

The bridge's web of 44 slender posttensioned cables looks more like a parting veil than the support system for a bridge. The cables seem to launch from the elliptical mouth of the tunnel, through which they are anchored. "Though they are two different elements," says Pei, "I wanted them to feel like one continuous progression."

Getting the right amount of tension in each cable was imperative. "They had to be 'twanged' to get the proper frequency of oscillation," says Leslie E. Robertson, structural engineer.

The cables are threaded through the steel arch, which is tipped at a 45-degree angle to the deck. Mounted on socket joints, the arch tips in response to heavy winds or traffic loads, taking up slack in the cables. Aesthetically, the arch is composed of a series of plates that have depth and shadows. "There is joy in seeing



SECTION

how something functions," Robertson says.

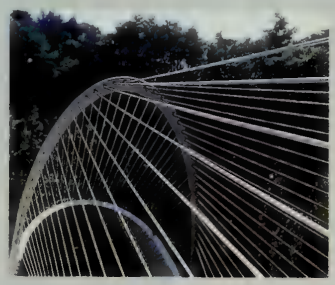
The cables are strung through fittings attached to steel outriggers at 6 ½-foot intervals. These are part of a triangulated frame, which conducts the forces through tension rods to an 8-inch-diameter steel pipe that runs 6 ½ feet below the deck.

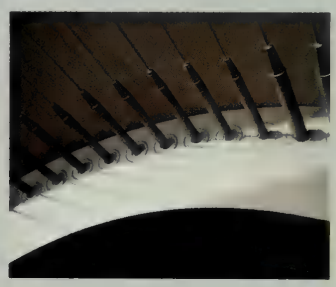
A second posttensioned cable system under the deck fastens to a king post beneath the freespanning portion of the frame. These cables limit deflection and provide uplift so that the bridge bows slightly upward at midspan, enhancing the sense of arrival and directing the flow of water off the bridge. "It's a structure that's all about balancing loads and equalizing stresses," says Pei. "The engineering brilliance lies below the bridge."

The 18-foot-wide deck is stainless-steel grating with a porous ceramic infill. Water percolates through the ceramic beads and drips to the canyon below.

The balustrade is a series of perforated stainless-steel sheets. The perforations have a slight screening effect, providing a sense of security for those who would rather not see over the edge.





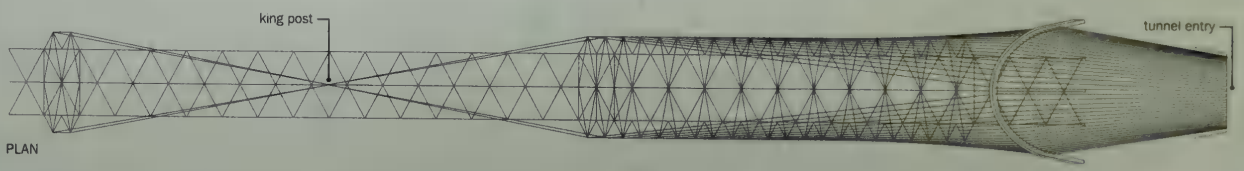


The 44 cables resemble a parting veil as pedestrians pass from the tunnel to the bridge (above). The posttensioned cables fan out (right) after passing through threaded rods in the arch (far right) and are anchored to the space frame.



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PLAN

CASE STUDY

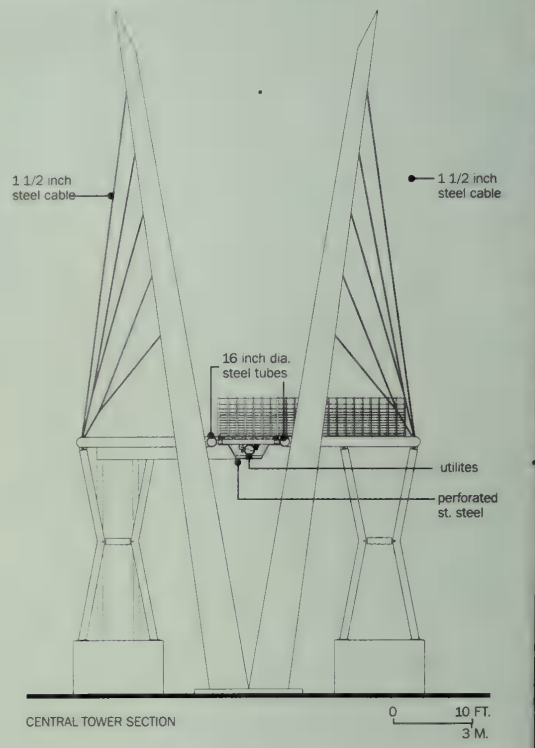
Rockefeller University Bridge

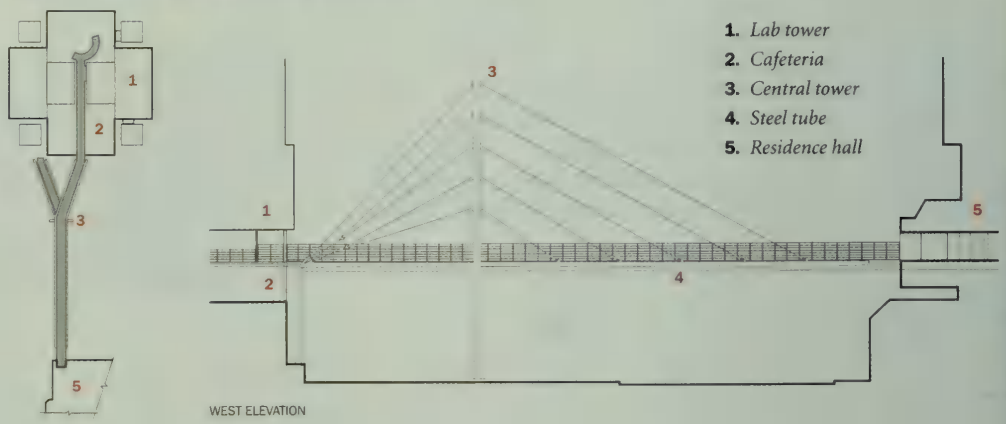
Architect: *Wendy Evans Joseph Architects, New York City*

Cost: *$125 million*

Engineer: *Weidlinger Associates Inc.*







Rockefeller University is not a conventional university campus, but a collection of primarily laboratory research buildings on Manhattan's East Side. Though the 90-year-old buildings located at the East River edge of the campus are thoughtfully sited, many of the newer structures were, says Joseph, "plopped down with little thought given to the interstitial spaces."

One such "plopped down" building is a residence hall at the south end of the campus. Located across an off-ramp from Franklin D. Roosevelt Drive, the building offered no safe route for residents walking to the main campus. Several researchers were injured while dodging cars.

To get the occupants across the street safely and to unite the building with the rest of the campus, the university decided to connect the residence hall to a laboratory building across the street with a pedestrian bridge. The bridge also offered a way to bring utility and telecommunication lines to the hall from the university system.

To achieve these goals and preserve the 63rd Street view corridor, the engineer and the architect settled on a cable-stay bridge with a V-shaped, 89-foot-tall central tower. The tower shape responds to a split in the bridge on the lab building end; to the left, the slender bridge meets the utility access area and to the right it pierces the lab building.

The 118-foot straight span is 34 feet above the street. The 1 ½-[illegible] supporting cables are [illegible] beneath the [illegible] attached to the [illegible] and 16-[illegible]. The [illegible] was [illegible]

just shy of their termini to create a lighter feel. Pipes and utilities run beneath the deck, encased in perforated stainless steel.

After the split, each leg of the bridge extends 45 feet. The right leg, however, continues through the building and is suspended from ceiling beams over a two-story cafeteria. "It's wonderful to be at one of the tables and look up at the bridge," says project architect Robert Furno. "It's as if exciting things were happening up above." The bridge terminates at a stairway and elevator bank, which lead to an outdoor plaza renovated with detailing similar to that used on the bridge.

The deck is flexible epoxy composite with a black granular nonskid surface that mimics the look of granite and matches the black granite stairway. The railing, horizontal layers of ½-inch stainless-steel rods, is capped by a cube-shaped stainless-steel rail.

Large expansion joints were necessary between the bridge and the buildings at either end. These junctions are "mechanically and structurally complex" due to varying rates of expansion and contraction between the structures, says Matthys Levy, the structural engineer.

The bridge plan splits into a "Y" beyond the V-shaped tower (above) to accommodate pedestrians and utility lines.

The bridge was preassembled from four pieces, including the tower, by a steel fabricator in Canada and shipped to New Jersey. One evening, after midnight, a crane was erected on-site, and the bridge was convoyed over the George Washington Bridge (which links New Jersey and Manhattan) and hoisted into place. By morning rush hour, the main span was set in place, the cables were attached, and the crane was dismantled.





A Panel Discussion

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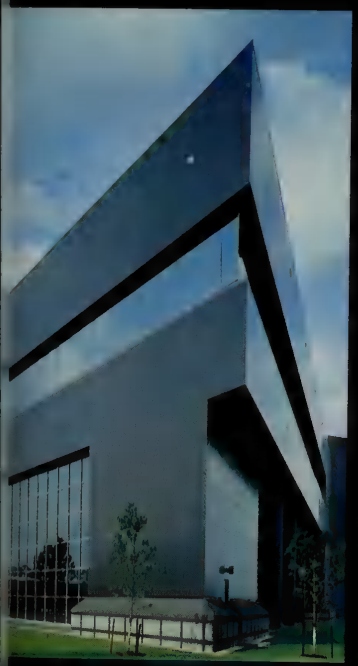


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CIRCLE 50 ON INQUIRY CARD

CASE STUDY

Lockmeadow Millennium Bridge

Architect: *Wilkinson Eyre Architects*
Engineer: *Flint & Neill Partnership*

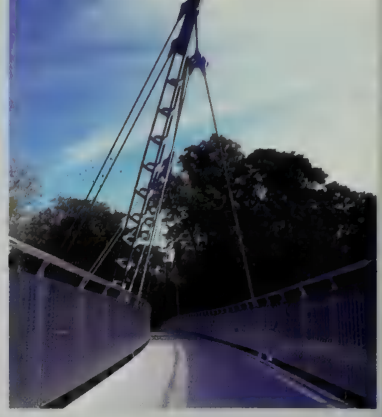
Near the center of Maidstone, an hour outside London, sits an old palace classified by the British government as an ancient monument, "the highest grade of historic sites," says architect Jim Eyre, of Wilkinson Eyre Architects. Eyre was charged with designing a pedestrian bridge to stretch from near the foot of the palace, across the River Medway and its floodplain, to a new "leisure center" on the other side.

The bridge had to be sensitive to the historic site, yet inviting enough to lure people to the new center. It also had to accommodate boats on the river and be sturdy enough for those occasions when this placid body of water surges and foams across its floodplain. Lastly, construction access was good on the floodplain side of the river, but poor on the other, a condition that drove the structural design.

The 260-foot span, half of which was over the river and half over the floodplain, is bisected by a concrete pier, which serves as the base for the masts. In the event of a flood, the pier acts like a ship's cutwater, cleaving the river's flow.

The 49-foot-tall, cigar-shaped masts lean outward, separated by a 90-degree angle, to keep their height in scale with the nearby historic structures. They appear lightweight, almost filigreed, and seem to blend with the trees. "We wanted the bridge to blend with its surroundings," says Eyre. The cable-stay bridge is supported by two 2-inch-diameter cables that run between the masts and connect, via delta plates, to two additional cables on each side. The four cables support the cantilevers in either [illegible] link to the bridge [illegible] shore and high- [illegible] through the [illegible] are [illegible] are con- [illegible]





The slender cable-stay bridge at Maidstone (left) spans both a river and its floodplain. The cables are strung from two lacy masts (above).

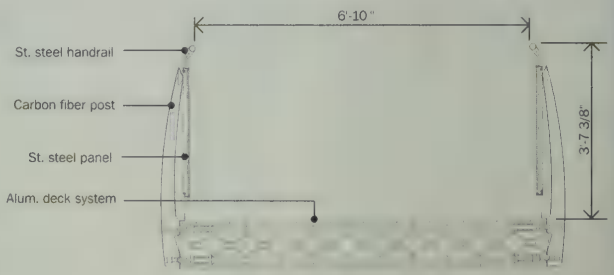
The deck tilts up slightly over the river to allow boats to pass. Developed by the architect and the engineer, the aluminum deck system, which is being patented in England, serves as both the frame and the finished surface. Aluminum is lightweight and strong, which allowed the deck to be slender. It is also recyclable, an important consideration in energy-conscious Europe, Eyre says.

The deck is composed of a series of interlocking U-shaped channels held together with high-strength bars to form panels, each measuring 7 feet by 26 feet. There are 230 of these panels on the bridge. The assembly has good damping properties, so vibrations are minimized. The top surface of the deck is grooved to give a rough non-skid texture.

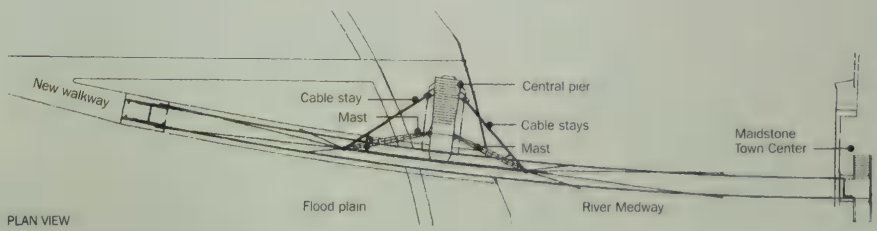
The baluster posts are carbon fiber, a strong, lightweight material much like fiberglass that's often used for race-car bodies. It was selected for the shapes that can be achieved—in this case, a slight curve—at a lower cost than cast aluminum or steel. The balusters and the handrail are stainless steel, a better wearing—but expensive—surface than carbon fiber.

When one walks on the bridge, it has a slight bounce, much like the simple bridges that span creeks and gulleys. "We like that movement," Eyre says. "It's rather like going for a hike."

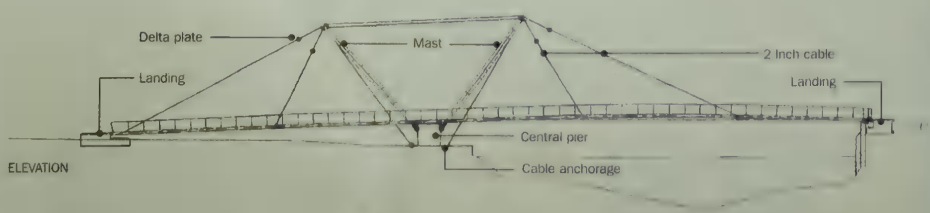
1. *Stainless-steel handrail*
2. *Carbon-fiber post*
3. *Stainless-steel panel*
4. *Aluminum deck system*
5. *Maidstone town center*
6. *River Medway*
7. *Center pier*
8. *Floodplain*
9. *Walkway*
10. *Cable stays*
11. *Mast*
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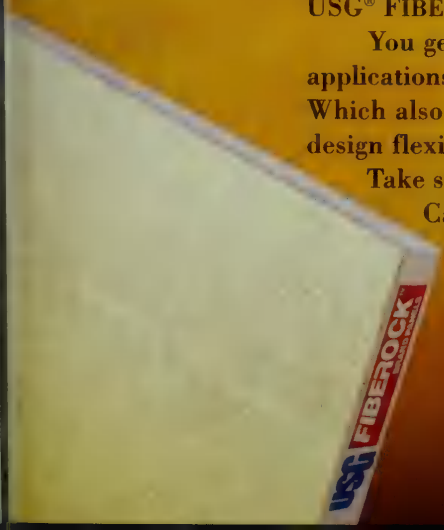
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CIRCLE 51 ON INQUIRY CARD

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CASE STUDY

Duisburg Pedestrian Bridge

Engineer: *Schlaich Bergermann and Partner*



"A geometrical trick" is how the engineers of the Duisburg Bridge describe its arching action. The masts at either end tilt back, pulling the suspension cables taut. This forces the hangers attached to the deck to lift, thereby raising the deck.

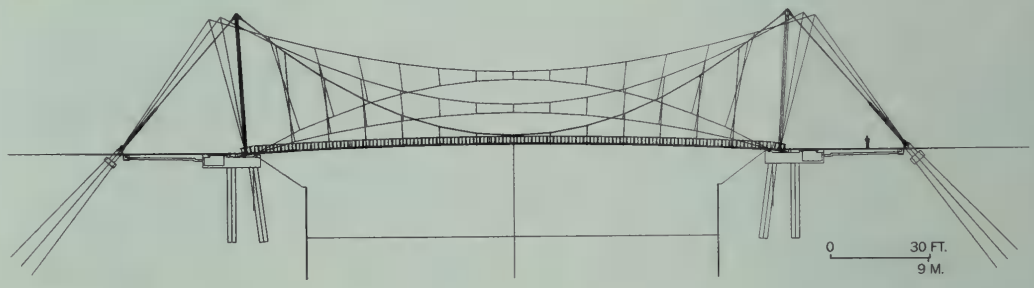
It is unfortunate that pedestrians cannot stay on the Duisburg Bridge as it arches, catlike, to make room for boats passing underneath it. "These safety restrictions take the joy out of a structure like this," says Jorg Schlaich. "I'd like to sneak out there and ride it up sometime."

Stretching over a harbor on the Rhine and linking the center of Duisburg, located north of Cologne, with a new development on the other side of the harbor, the bridge has a span of 242 feet (254 feet when it is fully arched) and is supported by both suspension and backstay cables. These two support elements are complementary. The suspension cables carry the weight of the bridge, but the backstays, joined to the masts at either end, lift the bridge.

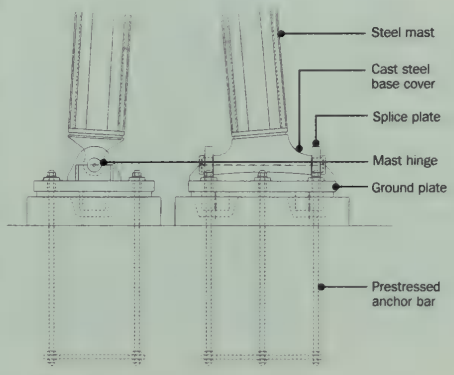
When a ship approaches, the harbormaster presses a button that sets the bridge in motion. First, red lights flash, warning pedestrians off the structure. Hydraulic jacks, inserted in the four backstay cables, shorten the cables, forcing the masts to tilt backwards and causing the deck to arch upward. The jacks can be stopped at any point, allowing the bridge to be only partially lifted. The process is simply reversed to lower the bridge.

The 66-foot-tall steel masts are set on hinges that allow them to tilt. The suspension cables are attached at one side of each mast head, while the backstays join at the other side. "This was an important detail; failing to configure it correctly would have caused the masts to bend during the lifting process," Stein explains.

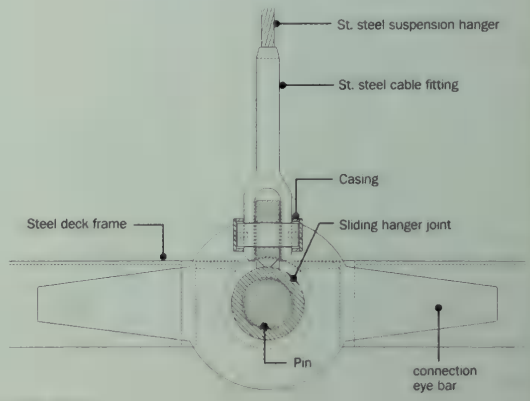
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ELEVATION



MAST DETAIL

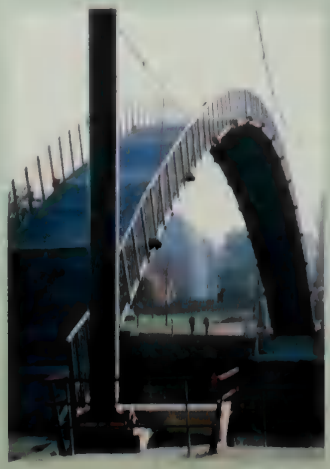


HINGE DETAIL

to the bridge suspension cable. As the backstays shorten and exert pressure on the bridge cable, the hinges are pulled upward. The deck lengthens as the bridge arches, pulling additional material from pockets in the abutments at either end of the bridge.

The handrails are also connected to the steel frame. As the bridge lifts, the rails, left unconnected over the hinges, split.

"Watching the bridge lift is a wonderful sight," Schlaich says, "especially when you know all the complexities that go into it."







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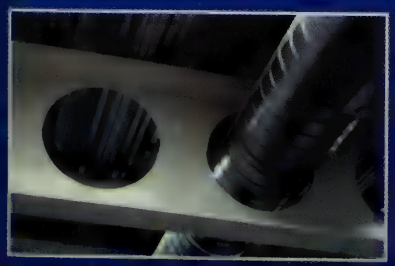
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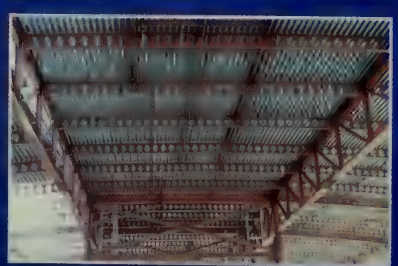
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CIRCLE 52 ON INQUIRY CARD

continued from page 150 structure, so the material should not interfere with this purpose. Also, if the bridge needs to support an occasional vehicle, the deck must be wide enough to do so—generally at least 6 to 10 feet.

When a pedestrian bridge spans a highway, it must direct water to either end of the structure so that it doesn't drain onto the road. This requirement can get complex, particularly when the bridge stretches between buildings. One common solution is to install gutters or piping along the edges or the undercarriage of the deck.

While open grating allows water to drain through, an acceptable solution over highways, it can compromise pedestrians' sense of security, not to mention that open grates aren't comfortable underfoot and offer no wind shield.

Footbridge designers should also consider how to remove snow from a deck. Heating cables can keep snow off a deck, but they use a tremendous amount of electricity. It's preferable to make the bridge accessible to a small plow.

Good lighting

People traversing a bridge at night need enough light to feel safe. In urban areas—the setting for most pedestrian bridges—ambient light is usually plentiful. Still, some artificial lighting is necessary, not only to help pedestrians see the way and others crossing the bridge, but also to accent architectural features, including entry and exit points.

"The lighting designer should be brought in early on," says Robert Prouse, a lighting designer with H. M. Brandston & Partners Inc. in New York City. "That way the lighting can be integrated into the bridge structure." At the Duisburg Bridge, openings were left in the balusters to hold lighting. When the bridge was completed, lamps were easily slipped into place.

If a bridge passes over navigable water, the U.S. Coast Guard regulates the under-bridge lighting. Indicator lighting (red and green) signals the location of a channel. Similarly, tall masts, especially those close to an airport or on a flight path, may require Federal Aviation Administration lighting on top.

Prouse recommends lighting that respects the inhabitants of buildings surrounding a bridge. "No one wants a great big light shining into their home, no matter how much they like the bridge," he says. In addition, the needs of drivers must be considered when the bridge is over a highway. Excessively bright lights on a bridge make it difficult for drivers to see other cars.

Vibration and loads

AASHTO provides standards for pedestrian, wind, and occasional vehicle loads and deflection. But designers should also be aware of expansion and contraction forces, which can be particularly strong given a deck's exposure to the elements. There are also erection stresses if a bridge is preassembled.

Vibration caused by people walking or running will not cause a bridge to shake loose, but it can make a structure feel unsafe. "If the bridge is shaking when you walk across, you feel like it's going to come down," Abrahams says. "It's like walking on a trampoline."

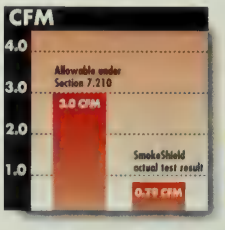
Stiffening handrails and support cables reduces vibration, as does specifying a deck material with some give—asphalt or epoxy versus steel, for example. But in many cases, a little bounciness is desirable. "We wanted people to know they were on a bridge; a little movement and sway is part of the experience," Eyre says. "That's part of what pedestrian bridges are all about." ■

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CIRCLE 54 ON INQUIRY CARD

BRIDGING THE GAP: HOW TO SPECIFY A PEDESTRIAN BRIDGE

Specifying a premanufactured pedestrian bridge is not an ordinary task for an architect, but it's a process worth understanding.

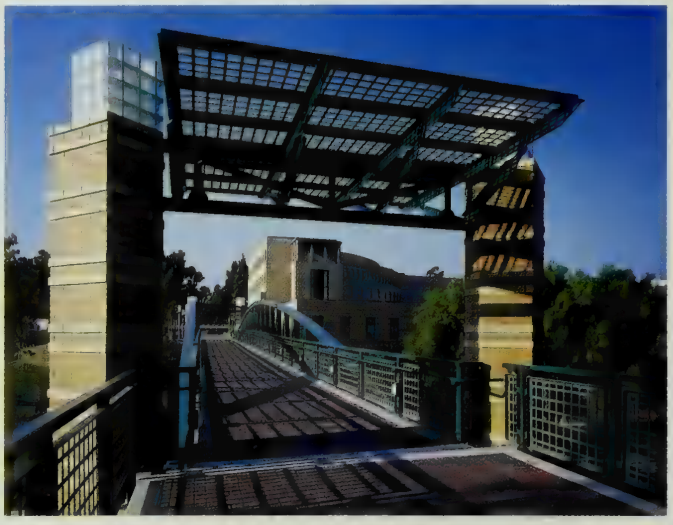
Manufacturers need to know the dimensions (width, span, and camber), style, and whether pipes or external attachments for gas, electric, or irrigation lines are needed.

Most pedestrian bridges are designed for an evenly distributed live load of 85 pounds per square foot, unless the bridge serves as a building's sole exit or entry. In that case, the requirement increases to 100 pounds. Bridges designed for moving vehicles carry a load of 1,000 pounds per square foot.

Other engineering factors include snow and wind loads, deflection, and vibration. The method for anchoring a bridge to a site depends on codes, materials used, and weather and soil conditions. This is normally the purview of a local engineer.

Although these bridges are prefabricated, architects can choose from various designs and deck materials that make the bridge appropriate to the setting. Steel bridges can be painted to match surrounding buildings. Weathered steel forms a protective rust coating. Deck materials include wood, concrete, metal grating, or asphalt, each with advantages and limitations. For example, snow and rain removal are simplified with metal grating, but the material is hard on users' feet and provides little protection from drafts.

Depending on the time of year (business can be especially brisk during spring and summer), a bridge typically takes 12 weeks from the order date to produce. Delivery is most cost efficient when a bridge is shipped in few pieces, but roads and the site must be wide enough to accommodate these pieces. Steadfast Bridges, for example, can ship a 12-foot-wide, 70-foot-long bridge in one piece to most places. Even the largest pedestrian bridges can be installed in less than a day by using a crane. *Rita F. Catinella*



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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Crossing Safely to the Other Side" using the learning objectives provided.
- Complete the questions below, then check your answers [page 216].
- Fill out and submit the AIA/CES education reporting form [page 216] or file the form on ARCHITECTURAL RECORD's Web site at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. How are the AASHTO guidelines used in designing pedestrian bridges?

2. Which structural types of bridge design are normally used for pedestrian bridges?

3. What are the factors to consider when selecting bridge materials?

4. What do communities often look for in bridge design?

5. What is the impact of vibration on pedestrian bridges?



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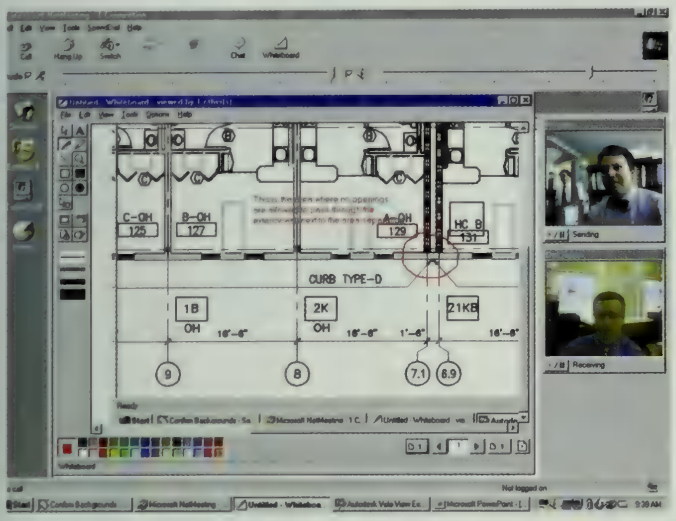
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Tech Briefs



GOOD NEWS FOR ARCHITECTS SEEKING BUILDING PERMITS ON THE INTERNET

It's just a matter of time until building permits are obtainable online. But thanks to new software applications—as well as a decision by the California State Board of Architectural Examiners to allow legally binding "digital signatures," to authenticate the identity and professional status of the sender—architects are a few steps closer to making online permitting a reality.

"Digital signatures are easier to describe by defining what they are not," says Zane Paxton, AIA, president of G-4 Consulting Inc. in San Carlos, Calif. Paxton works closely with a nonprofit organization called Joint Venture: Silicon Valley Network (www.jointventure.org/initiatives/smartpermit), which promotes collaboration between municipalities, high-tech manufacturers, and construction industry leaders ["Future", June 1999, page 228].

Digital signatures are not a digitized image of a handwritten signature. Rather, they are actual transformations of an electronic message that is made using cryptography. In the process, the digital signature is tied to the document being signed and to the signer.

Several cities are working toward an automated permit process. Architects in New York City submit application forms on disk to reduce paperwork and speed approvals. In Charlotte and Houston, architects apply for permits and check the status of plan reviews and inspections online.

But Joint Venture, which works with eight cities in California to develop Web sites that track and review electronic submissions, is closest to fully automating the permitting process.

Part of the credit for this goes to new software that's aiding the permitting process. This includes Autodesk's free Volo View Express, which lets non-CAD users view, measure, and mark up on-screen drawings. Adobe's portable document format (PDF) converts any document, including handwritten notes, to Web format. And Microsoft's NetMeeting allows architects and code officials to discuss and redline projects during electronic whiteboard sessions (above).

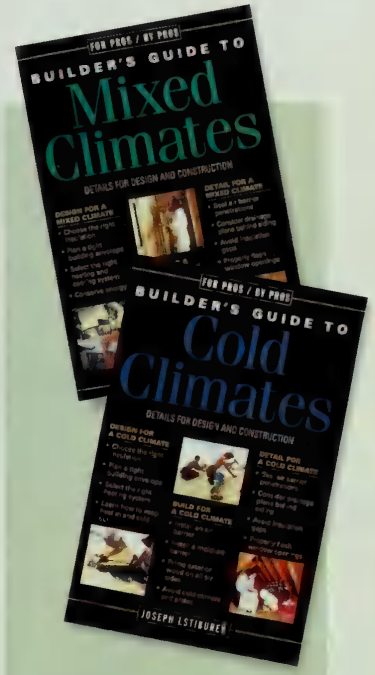
IMPROVING NEW YORK'S ENVIRONMENT

New York State governor George Pataki recently proposed a tax break for builders who construct buildings in ways that reduce pollution, waste, energy use, and indoor-air contamination. Many states, including New York, already have financial incentives encouraging developers and building owners to improve energy efficiency, but the tax-credit program, whose impact would be much broader, is probably the first of its kind in the country.

The plan requires that an architect assess construction documents to certify that they meet certain green standards. Builders could get a tax credit of up to 5 percent of the cost of the environment-friendly technology or materials; 6 percent if the building is in a poor area. More would be available if tenants also adhere to green standards. An extra 2 percent credit would be available if building tenants also adhered to the standards. *Wendy Talarico*

SAVING ENERGY ONLINE

A study released by the Center for Energy and Climate Solutions shows that the Internet-based economy promises to deliver important environmental advantages—especially energy savings. For example, buying a book online reduces the amount of energy used per book sold in the traditional manner by a ratio of 16 to 1. Shipping 10 pounds of packages ordered online via overnight air uses 40 percent less fuel than driving roundtrip to the mall. Also, the Internet may ultimately reduce the amount of commercial building space that's needed by 5 percent, save 2.7 million tons of paper every year, and significantly reduce traffic congestion. *W. T.*



Advice on the Nitty Gritty of Residential Design

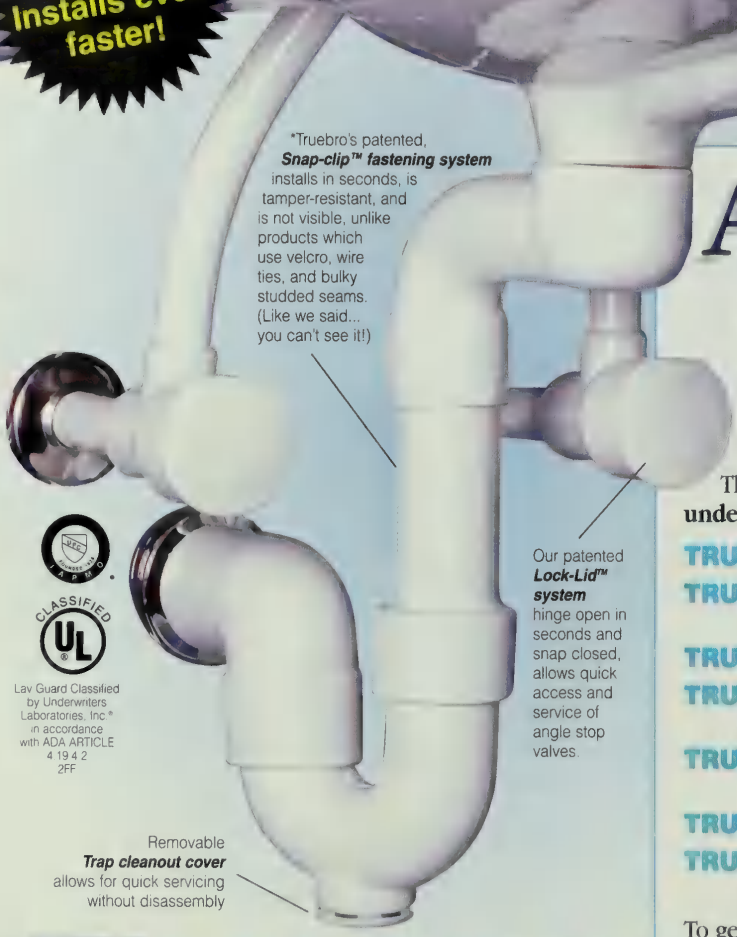
One can tell that *The Builder's Guide to Cold Climates and Mixed Climates* (The Taunton Press, two volumes, 335 and 328 pages, respectively) is a good, informative read; both are written by building scientist Joseph Lstiburek, an authority on moisture-related building problems. Lstiburek, is a dynamic lecturer adept at distilling complex concepts into clear language. It makes sense that his books would be just as concise.

The volumes feature sections on designing foundations, framing, HVAC, plumbing, and insulation systems according to various climates. There's a chapter in each book about designing a house to fit not only the site, but also the microclimate that exists on the site. The appendix includes a once-and-for-all explanation of vapor retarders and where to put insulation in relation to them. But best of all are the pages and pages of clear, understandable, and detailed drawings. *W.T.*

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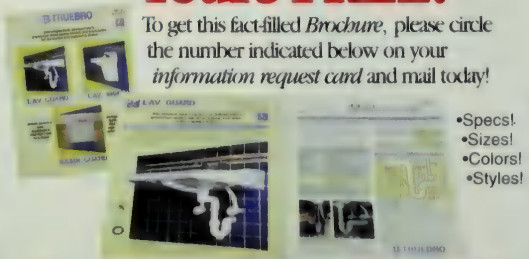


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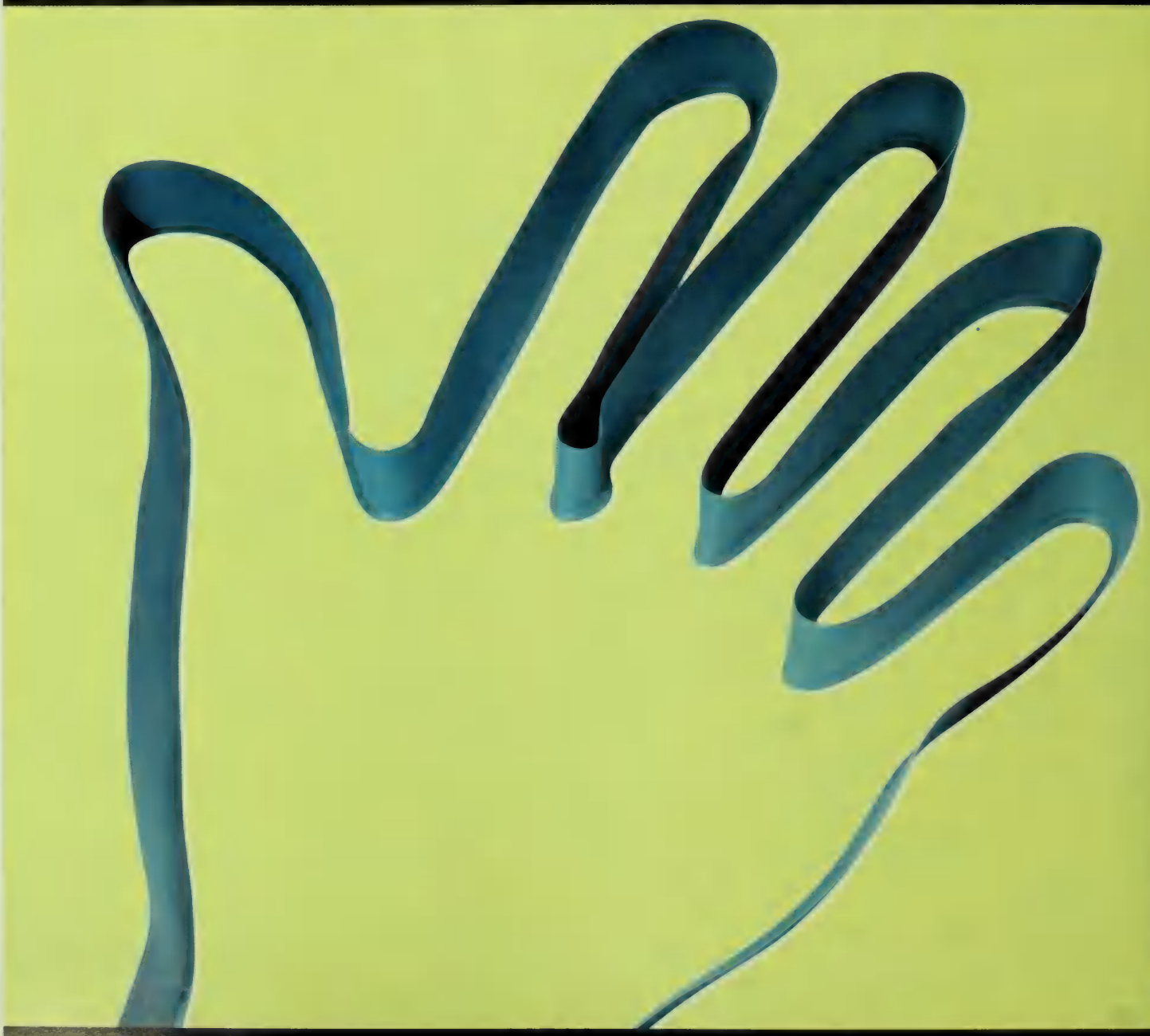
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Boardrooms, Training Facilities and Presentation Centers



Enron (l) and Lucent (r) boardrooms, by Paoletti Associates

Window on the World

Imagine that the CEO of a major corporation has just called a meeting to order, and one of the board members makes a motion to discuss a proposed acquisition. The CEO leans forward, and presses a button on a small touch screen. Within seconds, the lights dim, the curtains close, two LCD projectors descend from the ceiling, and the walls at the opposite ends of the conference table magically transform into large projection screens.

The financial officer plugs his notebook into a nearby control panel and sends the latest figures on the merger to one of the projection screens. The CEO presses another button, and the second screen reveals the CEO and his management team at the company about to be acquired. As discussions begin between the two companies, the cameras automatically move to each member as he or she expresses an opinion. As the meeting moves along, presentations are made which include videos and other graphic demonstrations of products in use, plant operations, marketing activities and advertising campaigns. After hours of long distance give and take, the basis for a merger is hammered out to everyone's satisfaction.

Pure fantasy? Not at all. This scenario is played out daily in boardrooms, war rooms, presentation centers and other business communications facilities throughout the world. In order to stay ahead of competition from around the globe, corporations are now more than ever before equipping their boardrooms with the tools they need to make real-time, split-second business decisions. In today's speed-intensive corporate environment, the success of a company is often reflected in the form and function of its meetings/communications facilities.

A boardroom shows the kind of company that you're dealing with, explains George Chin, a vice president and studio director with Gensler, an architectural firm based in San Francisco. It represents a firm's signature, so it's not surprising that companies often put a disproportionate amount of their money into the areas that the public is likely to see — reception areas, client conference areas, and boardrooms — while spending far less per square foot on private work areas.

What starts as a small remodeling job can take on a life – and a budget – all its own.

Usually budgetary constraints have a tendency to go by the boards because so many groups get involved with these kinds of projects, explains Nathan Chess, a project manager with Hird/Blaker, an architectural woodwork firm based in the Bronx. You've got your basic in-house facilities that are planning it, as well as your IT groups, your MIS people, and your AV squad. And everybody is saying, Listen, you have got to have this. As it gets kicked around, high-level executives become involved who might not normally be involved in an architectural project.

Most AV consultants take a needs-based approach. They spend time interviewing executives — especially those who will be meeting in the boardroom — to find out how the room will be used. We try to do it in layers, says Peter Schmidt, a project manager with CDAI. We start with a general discussion. What types of meetings will be in the room? How many people will be in these meetings? Does everyone have an active role in the meeting, or do some people serve in an advisory role?

Part of the interview process involves deciding who will have the responsibility for the technology after the construction is completed. You have to think about who will be the stuckee, says Michael Leiboff, a principal with the New York-based AV consulting firm Shen Lisom & Wilke. Who is going to be charged with the responsibility of not only operating the room during the important presentations, but providing maintenance and support and — to a certain extent — beating the drum for the technology?

A Collaborative Process

Most high-tech boardrooms involve both an architect and an AV consultant, so there's generally some give-and-take concerning the appearance and performance of the room. It's the fight between form and function, says Chris Maione, with Costello Maione Schuch (CMS) in Long Island, New York. The compromises usually involve hiding the technology from view. A retractable projection screen might be concealed in the ceiling, controls might be mounted in a table drawer, or flat-panel monitors might rise out of



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"A Boardroom SHOWS THE KIND OF COMPANY that you're dealing with. IT REPRESENTS A FIRM'S SIGNATURE."

the table. A high-profile boardroom will have tiny microphones embedded into the table, where a not-so-public training room will have gooseneck microphones for better audio.

The give-and-take between the architect and AV consultant can also involve a series of design tradeoffs. Maione and Chin worked together on a Mercedes-Benz boardroom. A horseshoe-shaped table had been planned, leaving the middle of the table open to the carpet. When, at the end of the project, Mercedes-Benz opted for a solid table, Maione requested that the ceiling be changed, because he had been counting on the carpet to adsorb some of the sound. A table can also affect the visual quality of the videoconference. When you have AV, the surface shine has to go away, because otherwise you get a reflection on the people there in the room, says Chin.

When videoconferencing is involved, Maione will work up a list of AV preferences for the room, such as light-colored fabric, carpet that isn't too ornate, a plain ceiling, or additional lighting. Without that information, our designers might meet with the client and come up with something entirely different, says Chin. The client may want to see dark traditional wood, ornate Oriental carpets on the floor, and chandeliers. We take what the client wants and what the AV guy requires and come to some sort of happy medium.

MORGAN STANLEY DEAN WITTER

Located in New York. The Morgan Stanley boardroom can communicate via audio- or videoconferencing with many of the company's branch offices throughout the world. It also hosts important press events. Located on the 40th floor of the building, the boardroom is connected to a 6th-floor master control room via fiber-optic cables. A camera in the front wall provides a wide view of the room, and a camera on a back side wall focuses on the podium. A voice amplification system allows people at either end of the 30-foot table to clearly hear the people at the other end.

MORGAN STANLEY TOOL BOX

- Audio Technica Microphones (23)
- Sony 1610 1/2" VHS Videocassette Recorder
- Sony TU 110 TV Tuner/CAT5 Transceiver
- RGB SPECTRUM Computer/Video Scan Converter
- Sony RVP 6010 LCD Data/Video Projectors (2)
- TOA MB-25 Audio Mixer/Amplifier
- Atlas/Soundolier FA136/747 Ceiling Speakers (18)
- Sony EVI-D30 Videoconference Cameras with Pan/tilt heads (2)
- Picturetel Concorde Videoconferencing CODEC
- Ascend Multiplexer and Modem

Lighting is especially important for videoconferencing. There can be so many lights, it looks like a studio, says Chin. You may need literally dozens of lights in the ceiling just to light the space for broadcasting. The higher-than-normal light levels can, in turn, affect the choice of decor. For example, the material on the walls should be reflective, but not so reflective that it casts shadows.

The use of videoconference cameras can affect other design decisions. Video images can make everything appear to be two-dimensional, creating some unusual optical effects, if not handled properly. The portraits of past CEOs could be confused with the living-and-breathing participants at the table, and vertical or horizontal lines on the wall could appear to pass through the heads of the board members.

Videoconferencing also requires that companies alter the way they hold their boardroom meetings. You can't just have a wild meeting where everybody is talking back and forth, because the equipment is geared to jump to whoever is talking, says Dennis Paoletti of San Francisco's Paoletti Associates, Inc. With auto caption goes caption microphone mixers, the system picks up whoever's sound is closest to the microphone. If I start talking, my microphone is on, and everybody else's is off. If other people jump in and start talking at the same time, you get these random bursts of energy over the system. There needs to be a protocol for running the meeting.

The technology is there to support the meeting

. . . not the other way around, says Randy Triz, a senior associate with Shen Milsom & Wilke. Fortunately, with today's highly automated systems, the boardroom participants don't have to be ruled by the AV equipment. Many boardrooms are outfitted with touch-panel screens with common-sense labels, such as PowerPoint Presentation or Videoconference. By pressing a single button, you can trigger a sequence of actions, including closing the curtains, adjusting the lighting, switching on various cameras and microphones, and routing connections to specific video monitors and sound systems. We've gotten to the point where if the person at the third chair from the end of the table is speaking, the system knows where that person is, turns his microphone on, and shuts the other microphones off until someone else speaks, says Triz. It also trains a camera in his direction automatically.



Morgan Stanley boardroon by Costello Maione Schuch

High-Tech, High-Security

They sound like props from a James Bond movie (anti-eavesdropping devices, bullet-proof doors, and hidden passageways). In fact, they're an integral part of many corporate boardrooms.

These high-tech devices are designed to maintain the confidentiality of the participants conversation and protect the participants from malicious harm.

Privacy and security are big, big issues, says Costello Maione Schuch's Chris Maione. His firm handles many of the top financial institutions in New York City. Most of the boardrooms that CMS has been involved with undergo bug sweeps before each meeting. Some of CMS clients perform a bug sweep of the whole building, while others continually limit access to the floor of the building that contains the boardroom.

Thinking about using a wireless microphone? Think again. A Fisher Price baby listening device picks up a wireless microphone just fine, says Maione. Corporate spies could also use an inexpensive scanner radio to monitor the conversation. As a result of advancing technologies, companies have to rethink their usual ways of doing business. One company had spent many thousands of dollars to equip its boardroom with the latest privacy measures only to discover that the board members used cell phones inside the boardroom to discuss confidential mergers. The inexpensive scanner radio that can be used to pick up a wireless microphone can also be used to pick up cell phone conversations.

One of the more elaborate measures that corporations use to ensure the privacy of their meetings includes vibrating the walls and windows to evade eavesdropping. We flush the walls with white noise to prevent external eavesdropping devices or devices that might be fixed to the walls, says Maione. He installs tiny speakers into the wall that emit a steady stream of static. You don't hear it, because the noise is in the wall. Instead of picking up the boardroom conversation, a listening device detects only the noise. CMS has installed several of these systems, which are completely hidden from view. Another common method for preventing electronic surveillance is to install a half-inch sheet of lead or copper around the entire room.

If walls have ears, so do windows. Most boardrooms are situated in a corner office with a spectacular view, explains Maione. You can point a laser at a window and pick up the voices within the room. The glass vibrates from the voices, and the laser measures the vibration. The guy at the other end has an earpiece and something that resembles a gun, which points a laser beam at the window. The best way to counter this form of corporate espionage is to mount tiny mechanical motors into the window frame to vibrate the glass. Like the white-noise wall speakers, the technology is hidden from view. The motors are usually installed above the ceiling line.

GUY CARPENTER & COMPANY

Providing an impressive view from the 51st floor of the World Trade Center, Guy Carpenter's boardroom has a full complement of presentation and videoconferencing gear. In addition to functioning as a boardroom, the space is used for brainstorming, presentation practice, and customer presentations. The room features AV control panels at both the lectern and table, as well as a computer-based workstation at the rear of the room.

GUY CARPENTER TOOL BOX

Sharp XG-E350oU video projector
Autopatch 4 YDM Matrix Switcher
PictureTel 4500 videoconference codec
Creston custom-configured control system

Maione has seen a broad range of boardroom-based security measures. We did a room with a hidden elevator door as a measure against terrorists, he says. Other anti-terrorist devices include boardroom entrances that automatically deadbolt or become impenetrable gates, enough stored food to last several days, and razor blades attached to the lining of the air conditioning ducts to prevent anyone from crawling through.

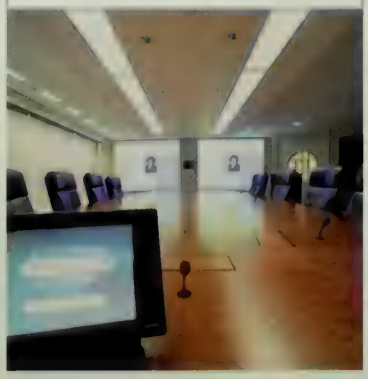


California Teachers Association boardroom by Paoletti Associates

CEO Wants and Needs

One thing is certain in the process of designing and constructing a high-tech corporate boardroom: Most CEOs don't have the time to become involved in the technical details. However, Randy Triz, of New York-based Shen Milsom & Wilke, is spending more and more time talking with CEOs, CFOs, and presidents. They have a goal and vision for the room, he explains. They know that when it comes to their sweetheart room, they need to impart the information themselves. Triz says that executive involvement is especially important for high-tech board rooms because the technology can't run the meeting. If we're going to be successful, we need to obtain the most concise information — and that has to come from the person with the vision that started the room.





Presentation room Guy Carpenter's boardroom (above), and (below) by Shem Milsom & Wilke

While today's automated control panels make it much easier for non-technical people to control complex operations, it will always be a challenge to fully CEO-proof the controls. Chris Maione of Costello Maione Schuch was explaining to a group of executives that the touch-sensitive control panels are as easy to use as a cash machine, when one executive looked at him and said, I don't know how to get cash from a cash machine.

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After one semester of use, Popovich Hall gets high marks. "The faculty and students, love it," explained Yormark. "One of the big successes is the growing acceptance of the technology among professors. The design of the presentation system has to work for the entire faculty, from those who have no interest in the technology to those at the other extreme who have no interest in using the traditional chalk and blackboard. So the technology has to be both easy-to-use and flexible enough to meet the needs of this range of users."

Eight Popovich classrooms are each equipped with two NEC MultiSync® MT projectors. Professors can display video and data from six sources, including S-video, composite video, data and graphics from laptop computers, and other sources. "With two projectors, there's a huge jump in flexibility," Yormark said.

"Professors can switch from a laptop to a document camera displaying an article from Fortune magazine or even a videostream of a presentation in another classroom. They also can display two side-by-side images to really make a point."

Additionally, 17 student collaborative learning rooms in the Popovich Experiential Learning Center have NEC MultiSync® MT projectors to let groups of six to eight students preview presentations of their solutions to problems posed by professors.

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All this technology is intended to acclimate students to the business settings they will face upon entering the work force. "Students work all day in an environment that matches or exceeds the Internet-based world that they live in," Yormark said. We have created a framework where the world of e-commerce is taken for granted, where exotic technology now becomes routine."

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Table Manners

It's the centerpiece of any boardroom, and often the focal point for the room's design and technology. Yet most people have no idea how much work goes into designing and constructing a boardroom table. The tables are generally custom designed for each installation. For a large and elaborate boardroom, an architect might create 100 drawings for the entire room, and an AV consultant might create 30 to 40 drawings for the audio-video equipment. According to Nathan Chess with the architectural woodwork firm of Hird/Blaker, the table might require 5 or 6 drawings and 20, 30, 40, or 50 sections, details, and elevations. Other woodwork in the boardroom might require another 30 to 40 drawings.

Even the most traditional-looking boardroom tables can hide some very untraditional electronics. Chess refers to high-tech boardrooms as Star Wars rooms. They want it to be sexy with all the bells and whistles, he says. They want everything motorized — sliding walls that slide away, tables that slide apart, things that pop up, and things that move down. Literally at the flick of a remote control switch, the lights will come down, the shades will draw, and the walls will slide away revealing a rear projection system.

The high-tech controls are usually integrated into the table, often hidden from sight. You'll have keyboard pullout trays at certain stations. When microphones and speakers are required for audio- or videoconferencing, Chess usually builds a combination microphone-speaker into the table near each seat. The challenge is to embed the microphones into the table so that they don't seem to be there, but make them noticeable enough that the participants don't cover the microphones with papers. Inside the table, there's a subsystem of wires — audio cables, video cables, fiber-optic cables, and power cables. The structural elements that support the overall tabletop also act as raceways and interconnections for all of our electrical work.

Strange, But True

Chris Maione of CMS recalls the time he was asked by a Chinese trade group to build a karaoke system into its boardroom.

Bill Othick of Dayton-based AAC remembers the time an electrician drilled a hole through B. F. Goodrich's million-dollar 300-year-old Persian rug. The electrician actually cut it with his utility knife, so he could run a wire through it, explains Othick. The electrical contractor had to pay the bill to hand stitch it back together.

Sometimes the transportation charge can vastly exceed the cost of the item being shipped. Hird/Blaker's Nathan Chess has been involved in projects where the equipment had to be hoisted into the building by a crane. For a project four years ago, the rear projection screen itself was something like 30 feet by 20 feet, explains Chess. The screen cost about $15,000, but it cost $150,000 to get it into the building. It was going up to the 27th floor, so they had to peel the skin off of the building and peel the windows out. In a similar situation, another company hoisted two screens by crane. They built one behind a wall for storage, in case the first one ever became damaged. The cost of the screen was relatively small to what it cost to get it into the building.

"Most high-tech boardrooms involve both AN ARCHITECT AND AN AV CONSULTANT, so there's generally some GIVE-AND-TAKE."

What's ahead for high-tech boardrooms?

Expect them to become increasingly more sophisticated, as corporations demand up-to-date information and instant communications. Expect the systems to be easy to control by people who couldn't care less about the technology. To fully compete in tomorrow's business world, corporations will have to integrate presentation and communications technology into the workplace — at all levels. Having someone wheel in a slide projector, sit it in the middle of the table, and speak over the noise doesn't come across as professional anymore.



The Serino Coyne boardroom created by CMS

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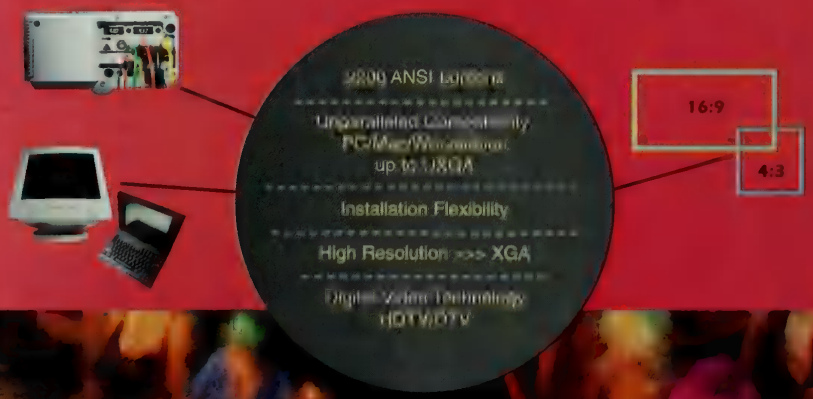
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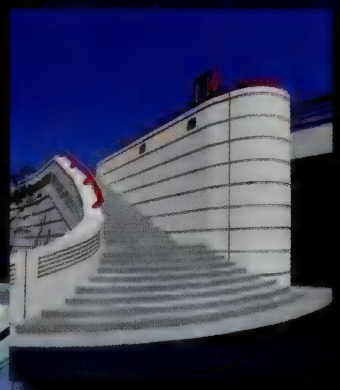
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CIRCLE 60 ON INQUIRY CARD

The Internet and new software make room for architects in facilities management.

By Eric Teicholz

Facilities management is the art of juggling the people, places, and equipment that constitute a company's real estate holdings. It is, in the words of one architect, what happens after the building is done. People who are facilities management practitioners may be part of a division within the company, members of a property management firm, or, more recently, architects themselves.

Designers entered the world of facilities management about 30 years ago when vendors of property-related software found ways to link a company's real estate databases to the CAD drawings generated by architects. Computer-aided facilities management, or CAFM, is a generic term used to define any software applied to facility management tasks. Examples include programs used to track space availability and physical assets, such as furniture and equipment; schedule shop personnel; maintain occupancy plans; or analyze and manage relocations, such as space planning and forecasting, help desk and maintenance work management, furniture layout, asset management, room scheduling, energy management, and construction project management.

Facilities management tasks vary among different architecture firms and change over time. The size of the client also determines what services are needed. In general, clients with real estate holdings less than 75,000 square feet don't need facilities management or are too small to generate a profit for architects with facilities management divisions.

CAFM is, in many ways, a natural extension of an architecture firm's work because architects not only create and maintain the drawings, but they also understand the building systems and program. "Disconnecting architecture from what facilities managers do is inefficient," says Susan Mosby, principal-in-charge of facilities management for CDFM^2 in Kansas City, Mo., an architecture firm that generates about 10 percent of its revenues by providing CAFM services.

Design and construction—the fun part for most architects—account for only 15 percent of the life-cycle costs of a building. But designers who offer their clients CAFM have an opportunity to participate in, and generate revenue from, ongoing maintenance and services required during the remaining 85 percent of the building's existence. CAFM also may serve as the basis for a better, more lasting client relationship. "One of our clients wanted a 50,000-square-foot addition. Using CAFM software, we did a study that proved they could reconfigure the offices within the existing envelope and forgo the addition," Mosby says. "For less than $10,000—the cost of the study—they saved $5 million. It seems that we also lost that design business, but just a few years later, the client needed that addition and more. We've done all their subsequent





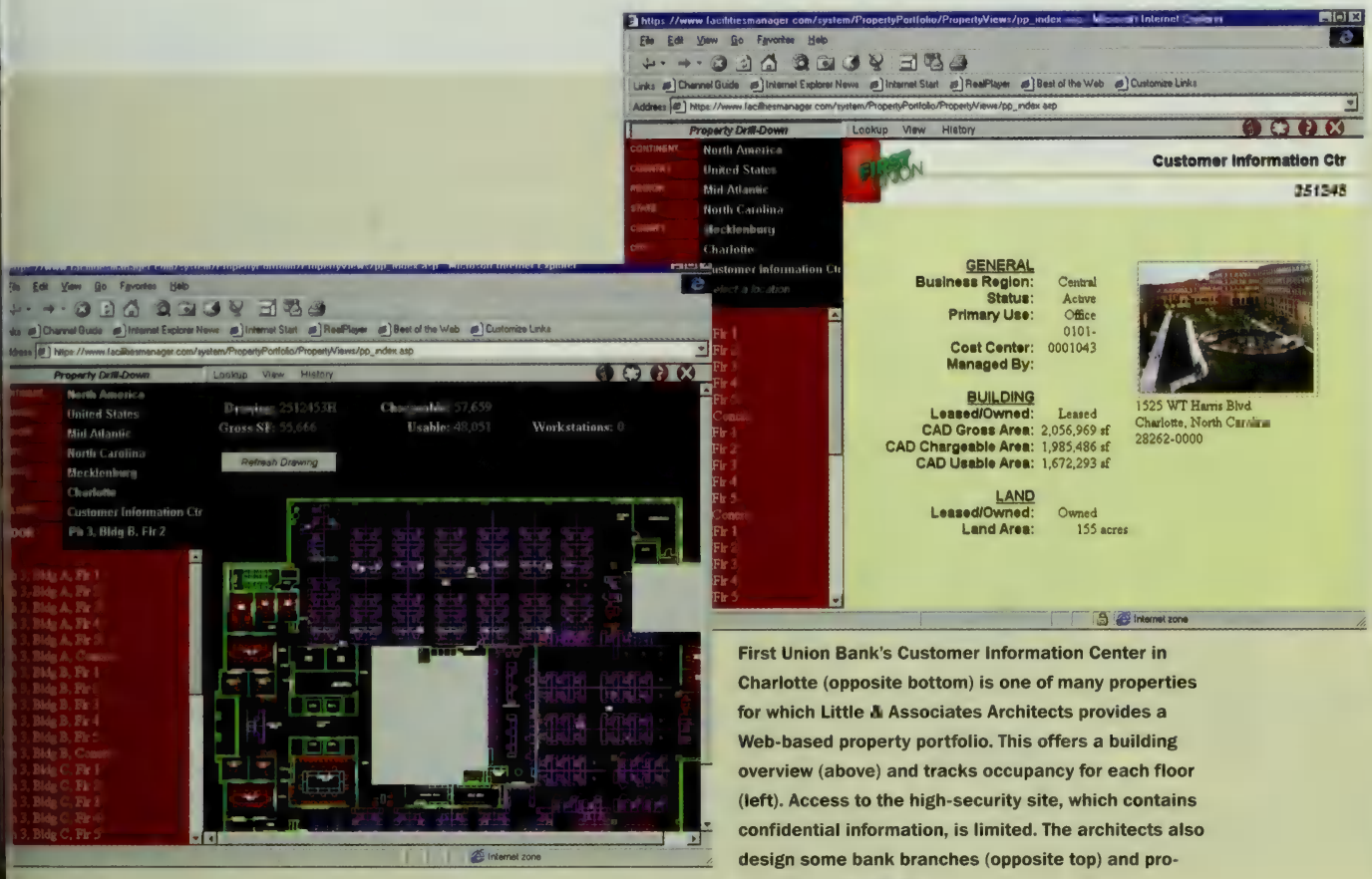
Performing a company's facilities management tasks forges a different type of relationship between client and architect, one that is more of a partnership. "We have such an intimate knowledge of our clients' business and how they use their space," Mosby adds. "Our solutions are much different and, I think, much better as a result."

The evolution of CAFM

When facilities management tasks were first computerized, software vendors wrote stand-alone applications using office automation software, including spreadsheet, database, and word-processing programs. As computers became more powerful, these vendors started linking graphic software—principally CAD and database software—to offer integrated management applications that shared data.

Software developers evolved along two paths, which remain today: either they create software for new applications, or they build links from CAD or other graphic programs to third-party software packages that perform various facilities management functions. An architect acting as facilities manager might, for example, use a CAFM package for generating CAD drawings and tracking space occupancy, but use a specialized

nd founder of Graphic Systems Inc. (www.graph-
ompany. Currently, he is writing Facility
ool (McGraw-Hill), his tenth book.



First Union Bank's Customer Information Center in Charlotte (opposite bottom) is one of many properties for which Little & Associates Architects provides a Web-based property portfolio. This offers a building overview (above) and tracks occupancy for each floor (left). Access to the high-security site, which contains confidential information, is limited. The architects also design some bank branches (opposite top) and provide them with CAFM.

third-party software package for forecasting space needs or for generating stacking and blocking diagrams for space planning.

Most CAFM vendors, such as FIS (www.fisinc.com), Peregrine (www.peregrine.com), FM:Systems (www.fmsystems.com), and Archibus (www.archibus.com), build facilities management applications on top of existing CAD software, such as AutoCAD and Microstation. Others, such as Drawbase (www.drawbase.com) and Aperture (www.aperture.com), develop their own CAD capabilities by linking to external CAD software.

"DISCONNECTING ARCHITECTURE FROM FACILITIES MANAGEMENT IS INEFFICIENT."

In the early 1990s, powerful database software from companies such as Oracle or Sybase was introduced. These let the user pull in information as needed from various programs located on a corporation's server instead of retaining all the information on the desktop. Suddenly, it was possible to disburse software applications and databases throughout an organization, eliminating much data redundancy, speeding up processing time, and making it easier to access a broader base of information. For example, CAFM software, operating on a manager's desk, might extract human-resource information or financial data from different departments within a network. This data could then be used for occupancy reviews or project management purposes.

Enter the Internet

In the mid-1990s, Internet access gave software vendors an opportunity to link disparate and multiple sites to provide users with ready access to database queries, CAD views, financial reports, work schedules, occupancy analyses, and other aspects of CAFM. With the Internet came intranets and, more recently, extranets, both of which carried additional implications for facilities management.

The Internet is used by facilities managers in many of the same ways architects use it: to seek information on materials, services, and products; to make purchases; to communicate with others; and to download software or plug-ins. Individual software applications are easy and inexpensive to obtain on the Web. An architect needing, for instance, a graphics program to draw a specialized space can pick up what is needed online. For example, VISIO 2000 (www.visio.com) offers facilities man-

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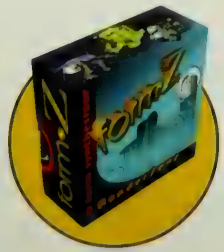
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CIRCLE 61 ON INQUIRY CARD

CASE STUDY

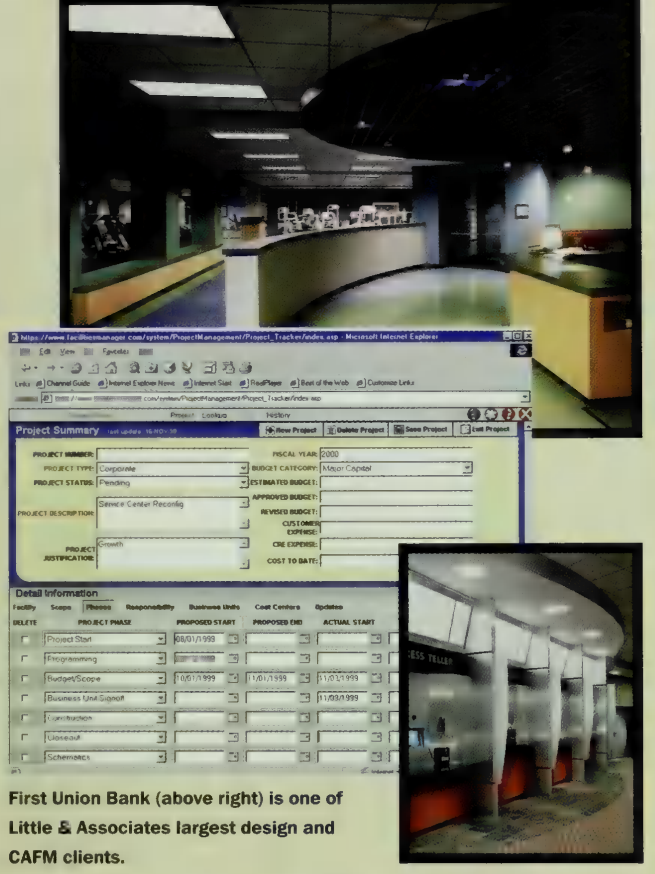
Little & Associates Architects, Charlotte
Employees: *550*
Employees in facilities management: *38*
Revenue from facilities management: *10 percent*

About seven years ago, a client of Little & Associates asked the architects to track the company's occupancy. Because Little was already doing most of the financial institution's interior upfits, maintaining the occupancy information was easy.

The client wanted "more and more" help in managing its properties, says Susan Hensey, director of Little's facilities management division. Soon the firm was involved in space tracking, real estate portfolio management, lease and internal rent management, strategic facility planning, asset management, property maintenance, and area calculations. Today, the division, the fastest growing within the firm, has architects who specialize in facilities management and provide these services on-site in cities up and down the East Coast.

The company hosts its own project extranets with Framework Technologies software (www.frametech.com), and rents extranet space from Bidcom (www.bidcom.com), depending on the needs of the customer. When construction is complete, the contents of the extranet are moved onto a CAFM Internet site that the client can access as needed.

The facilities management division is still an adjunct to Little's main focus: architecture. "The CAFM service creates ongoing relationships. With some of these clients, we still have to compete for work, but we have an 'in,'" Hensey says. "When you know more about the client's wants and needs, you can provide better architectural solutions."



First Union Bank (above right) is one of Little & Associates largest design and CAFM clients.

agement software modules that are used for designing rooms, linking to databases, generating reports, or inputting information. These facilities management applications are available at very low cost.

Susan Hensey, director of facilities management for Little & Associates, an architecture firm in Charlotte that specializes in serving retail and financial clients, uses these Web-based products frequently. "I download what I need, then throw it away when I'm done. It's quick and usually free," she says. "I can also subscribe to a new program for the term of the contract with the client."

But not all packages link easily and run well together. In fact, most CAFM software vendors try to control online access to their software and do not link to other Web-based software programs very efficiently. The new Web-based products are likely to pose a threat to traditional CAFM vendors, unless these vendors change their Internet software architecture, too.

The Internet also threatens to fragment the practice of facilities management. Functions that were traditionally the domain of facilities-managers are increasingly performed by others within and outside the company. Business units don't have to go through facilities personnel to make purchases of things like workstations. They can go to the Web and, using standards set by the company, place the order directly. That means less paperwork and faster delivery. It also siphons facilities management functions and disburses them through the organization. For architects, it offers, once again, an opportunity to sell services throughout an organization, not just to a facilities management department.

Intranets are valuable, too

Corporate intranets were—and continue to be—the primary venue for sharing the reports generated by CAFM software. Initially, these were generated in HTML. The problem was that the data was only as current as the last posting. For example, a member of the facilities management team might post an occupancy analysis, which looks at the physical location of people within a building. That report would have to be manually updated on a regular basis or it would quickly become obsolete, especially at a flexible company where team structures rapidly change.

Reports can now be generated in real time, thanks to technology that interacts with the CAFM software directly. Someone using a corporate intranet can download the latest version of the data when it is required by a particular application.

There are other advantages of having intranet access to facilities management reports. It allows department heads to check the status of their furniture orders, for instance, or to verify the company's design requirements and specified vendors before ordering certain components. These reports can be used to schedule conference room space, check the construction status of a new facility, schedule a move, or even find a caterer to supply food for a corporate event. Access to all this information may be limited, or there may be graduated tiers of security.

Extranet impact

The next leap in facilities management is using project Web sites or extranets for facilities management. Extranets offer document management services and track project data in the form of drawings, specifications, and change orders. The secured extranet site links the design consultants with clients, engineers, contractors, subcontractors, and other members of the design and construction team.

Within the past 18 months, more than 60 software vendors began offering project Web site software. If an architecture firm is large enough, this software can be loaded on its computers, offering greater control over the information generated. Another option is to rent access

CASE STUDY

CDFM², Kansas City, Mo.
Employees: *45*
Employees in facilities management: *8 to 10*
Revenue from facilities management: *6 percent*

"We think of ourselves as strategic partners with our clients. We not only develop the real estate, we keep it going for its life cycle," says Susan Mosby, principal-in-charge of facilities management for CDFM².

The architecture firm, which does about 60 percent of its business in corporate and public-sector work, with the balance in interior design, launched its facilities management division about seven years ago when a major client asked for help in managing its real estate department. "Taking this on proved that we did know how to manage major square footage," Mosby says.

Among the services the firm offers are property management, lease administration, space management, data and telecommunications, cabling, tracking of work orders, and move orders. It uses AutoCAD for design drawings and Archibus to connect the drawings to the databases. CDFM² also uses Microsoft Access to get information in and out of Archibus and tie into the client's software. The latter includes specialized systems for work orders, leasing, and roof management.

There are reasons why other architecture firms avoid facilities management: it's not as glamorous as design work and it's a substantial business commitment. Mosby, however, is convinced that facilities management has made CDFM² a better firm. "When we are doing architecture, we look at it in the mindset of property management. That leads to better solutions—we understand details that are easier to maintain, bay dimensions that will benefit changing use patterns, and other more practical aspects."



Projects designed and managed by CDFM2 include a renovated office building and interiors for DST Systems Inc., a mutual funds services firm in Kansas City, Mo.

to software hosted on the vendor's computers. Some software vendors offer free project Web site access. Autodesk spent about $50 million developing a site, Buzzsaw.com, that provides complimentary project Web site access in an effort to get the design industry to use the Autodesk portal.

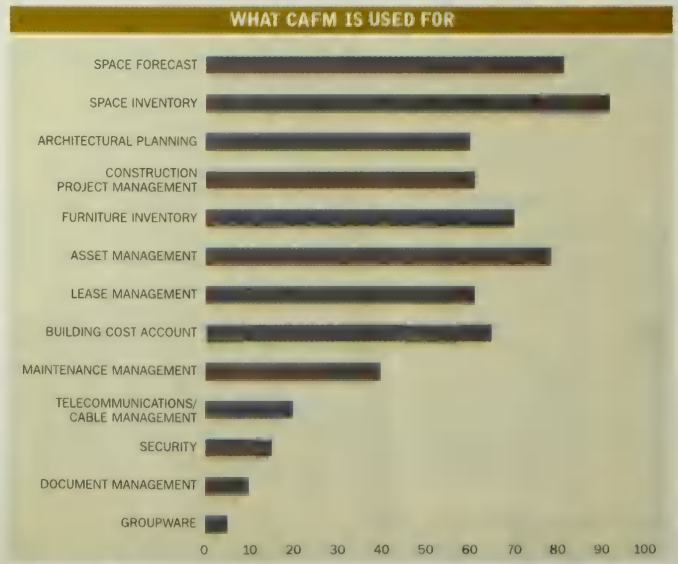
Despite the apparent ease of access, clients, consultants, contractors, subs, and others have been slow to adapt to this technology. This is likely to change and extranets, by controlling who is accessing, using, and managing facilities management data, will continue to change the relationship between architect and client. "We're finding the client is more involved up front in a new project and in every step of a renovation," Hensey says. For example, human resources might want to know how a move will affect staff members, finance might want to track project costs for budgeting and capital planning purposes, and business unit managers might want access to floor plans to configure offices.

Hensey sees extranets as increasingly important for client communications. Information is gathered as the project progresses and then transferred to an ongoing CAFM system for analysis, maintenance, and reporting. Extranets, which serve as repositories for documents and communications during construction, are ready-made archives. Instead of shutting extranets down when a project is finished, the architect can host the information on a local server and provide the building's facilities managers access. Posting this information—as well as reports, schedules, and other information generated by CAFM software—on the Internet gives the illusion that the facilities management service is located in the client's office.

The promise of E-commerce

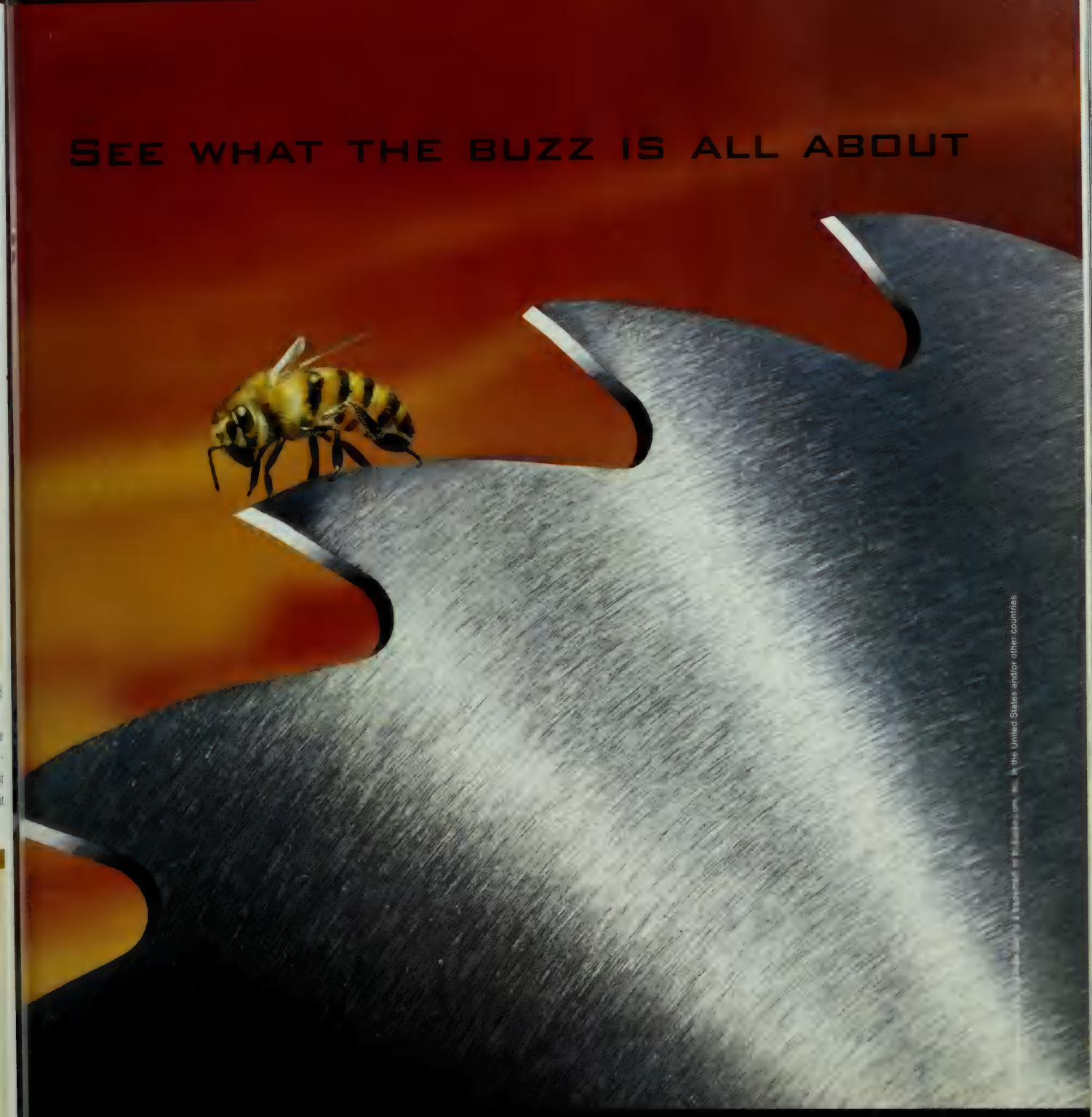
[illegible] are entering a B2B world; business-to-business sales [illegible] are expected to increase tenfold in the next four years. Project Web sites, for example, let remote users share documents, and construction materials and services will most certainly be purchased on the Internet, with manufacturers bidding online for the business.

The Internet will continue to exert an ever-increasing influence on how facilities are managed. Meanwhile, the number of architects offering facilities management services is likely to grow as more clients request this service. And software vendors will respond with flexible programs that are available via the Web to accomplish facilities management tasks. ■



While managing space inventory and assets makes up the largest percentage of CAFM applications today, growth in project Web sites promises to shift this focus.

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CIRCLE 62 ON INQUIRY CARD

Digital Architect

Making project collaborations effective

By Jerry Laiserin, FAIA

Now that most architects rely on computer and communication technologies to perform office functions and project work, these systems are influencing how architecture firms work together. The connectivity afforded by digital tools makes possible new levels of coordination and management control in single-project associations, more formal joint ventures, and permanent partnerships created by mergers or acquisitions.

Expertise by associations

An "association" involves two or more firms providing architectural services for—and sharing the credit and fees from—a single project. For example, national or international firms expert in particular building types, such as convention centers, museums, and performing arts spaces, associate with local or regional firms knowledgeable of local codes, contractors, and approval processes. Often, the firm providing construction documents or construction-administration services will be named "architect of record." Some firms associate for the purpose of seeking a project, while others hook up after one firm already has been awarded a principal role in the work.

Differences in the roles of the participating firms affect the technological side of the collaboration, according to Tim Rice, AIA, information systems manager at LMN Architects in Seattle. This 130-person practice frequently shares project responsibilities with other firms. LMN has served as the design or building-type consultant to other firms, as the prime architect with local associates in distant cities, and as the Seattle architect of record for out-of-state practitioners.

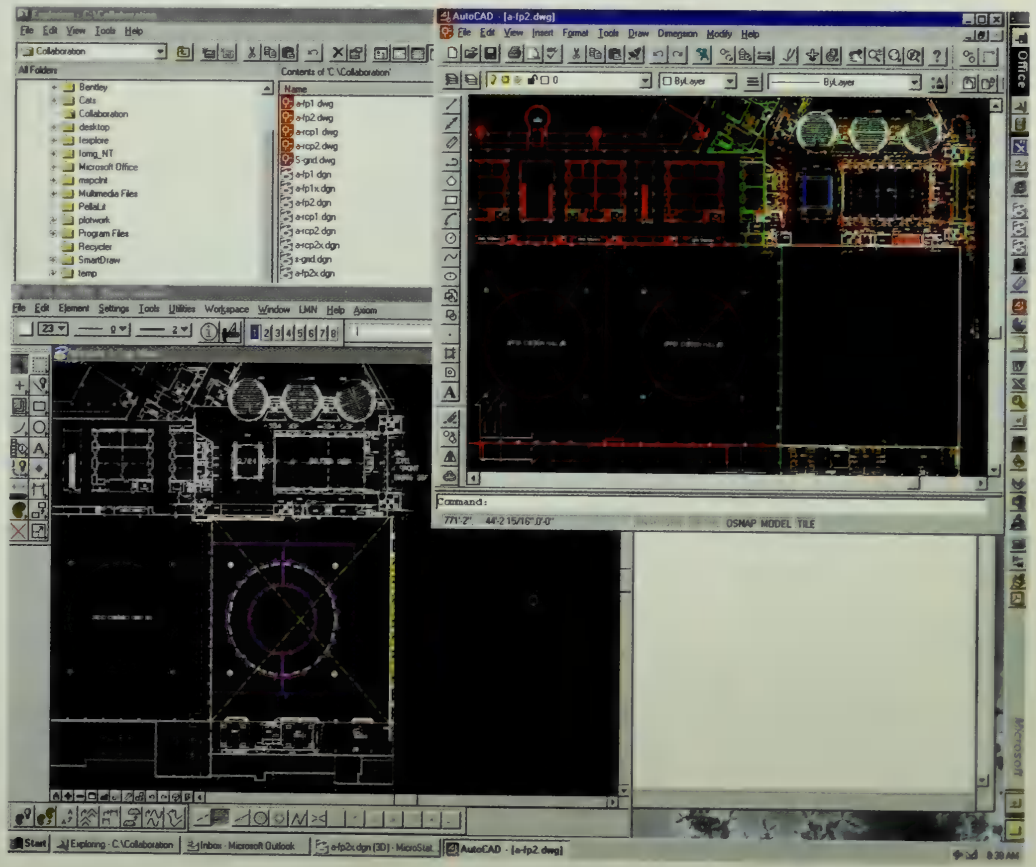
In particular, Rice distinguishes between projects with a distinct hand-off from one firm to another at the end of some designated phase and projects with continuous collaboration across multiple phases. For those with a distinct hand-off, explains Rice, it is critical that the "handee" monitor the "hander's" progress, starting at the very beginning of the drawing-file setup, so there are no unforeseen problems when the drawings are exchanged.

The best technique to avoid such surprises, says architect Elizabeth Skowronek, the associate in charge of technology at 90-person Gwathmey Siegel & Associates in New York, "is for knowledgeable parties on both sides to sit down at the early stages and work through all the issues, like setting which office standards will apply to the project documents." Skowronek finds that the variety of CAD systems is rarely an issue as long as both firms agree on the basic choices of drawing conventions, layer/level naming, and so on.

Collaborations across multiple project phases pose greater technological complexities, more file translations, and additional coordination issues. LMN has participated in many such continuous collaborations and, according to Rice, derives many design and practice advantages. But these collaborations may also create inefficiencies.

"The whole point of CAD features like reference files is the efficiency of drawing things only once and then referencing them in to other drawings. If one firm works on base floor plans while another firm handles details, however, that dynamic linking

When collaborating firms use different CAD programs, such as Autodesk's AutoCAD (bottom) and Bentley's Microstation (inset), special care must be taken with file conversions.



Contributing editor Jerry Laiserin, FAIA, develops collaborative strategies for architects and their technology providers.

of reference-file information is broken," Rice says. He also finds that the alternate method, known as "round tripping," in which each of the collaborating firms takes turns successively editing the same file, can cause data degradation on every translation. The best course, Rice says, is to decide which firm will own which drawings during which phases. This means that each firm will spend some additional time and money redrawing in its own files those changes made by the other firm.

Joint ventures

The Jerde Partnership International in Venice, Calif., specializes in themed environments, like the Mall of America in Bloomington, Minn., or CityWalk at Universal Studios in Los Angeles. According to architect Thomas Jaggers, Jerde's vice president and chief technology officer, many of the 125-person firm's projects are so large that they need to form joint ventures with other architects for to execute construction drawings. While there is no clear dividing line, joint ventures typically entail closer collaboration over a longer term than do associations, which are looser and more ad hoc. Consistent with this closer collaboration, Jerde emphasizes a fully integrated technology process for joint ventures that includes the choice of tools, the level of standards, and an insistence on high-speed communication capability.

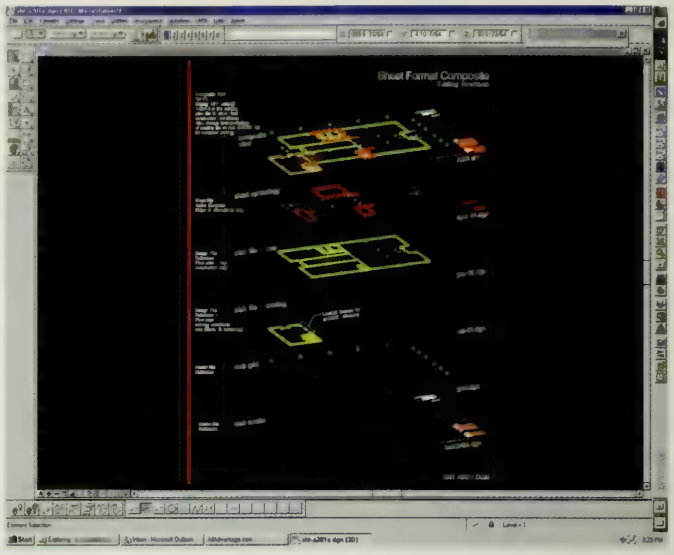
Jerde has developed a process of two-way workflow that Jaggers calls Construction Document Administration. Says Jaggers, "This is based on all participants matching our tools: Microsoft Office, AutoCAD, 3D Studio, Internet-compatible E-mail, and file transfer protocol (FTP). The [illegible] seem needs to have com[illegible]ards that [illegible] mem[illegible] CAD layering system. Jaggers finds the AIA's CAD Layer Guidelines too inflexible to accommodate the multiple engineering disciplines, landscape architects, environmental graphics designers, and others involved in large international projects.

Another significant coordination issue for joint ventures is keeping the team's software in synch throughout a multiyear project development cycle. "We may start a project today with AutoCAD 2000 as our software standard," observes Jaggers, "but by closeout in 2005, most of the team will have upgraded two or three times and some members may no longer be on the same version." This problem is equally true for scheduling or word-processing tools. While not imposed as a contractual obligation by Jerde on its joint venturers, the firm issues a project book of standards with the expectation of conformity throughout.

A high-speed connection to the Internet has now become part of that "expectation of conformity." An ISDN link at 128 kilobits/second (128k) is the minimum acceptable, in Jaggers' opinion, and is widely available in the Pacific Rim countries where the firm works extensively. Jerde prefers its joint venturers to have a fractional T-1 connection at 384k or faster, wherever it is available, especially as the firm expands its electronic workflow to include not just CAD files but also scanned images, 3-D models, and digital project photos. Jerde recently installed an in-house video-conferencing system. Even renting the video connection with the joint-venturers at $600 per hour saves substantially on travel time and expense for distant project locations, like Hong Kong.

Mergers and acquisitions

When two firms permanently combine resources, the resulting transaction may be characterized for legal and accounting purposes as a merger or an acquisition, but the effect on the combined practice is identical. In either case, many of the same technological concerns of an association or joint venture apply. The permanence of the relationship, however, demands a deeper sense of commitment by the new partners.



Architects sharing work need to establish strict procedures that define which firm is responsible for which files.

"People need to go in assuming there will be compromise on both sides, and they should expect to make a significant investment in getting all the technology up to the same high level," states Carl Roehling, FAIA, president of the Midwest group of regional offices within SmithGroup Inc. in Detroit. Within the past few years, this 1,000-person multidisciplinary firm has increased the number of its offices by more than 50 percent through mergers and acquisitions of firms in Manila, San Francisco, Michigan, and Washington, D.C.

SmithGroup was bigger and had more resources than the firms it absorbed and "therefore brought a higher level of infrastructure," according to Roehling. Merging CAD software, E-mail systems, and local area networks was generally easy because the compatibility and conversion issues associated with these mainstream tools are well known. Merging some applications proved problematic, however, when the staff members of a merger partner expressed preferences for tools that did not match the firm standard.

For example, when some merged employees had to switch word-processing applications, the firm had to provide document-conversion templates and additional training to smooth the transition. In other instances, change in procedure, not software, was the issue. Some project managers in merged offices preferred the immediacy of keeping their own job-costing spreadsheets over having to wait for centralized accounting reports to be disseminated from SmithGroup's Detroit headquarters. This reluctance was overcome by making the reports, generated in the CFMS/Advantage accounting system from the Harper and Shuman division of Deltek Systems, immediately accessible via SmithGroup's wide area network (WAN).

The firm's WAN also supports an Intranet, or Web browser interface to internal files [March 1999, page 39], that enables everyone in the far-flung practice to share the same view of the same information at the same time. This technology makes mergers more effective because communications and connectivity knit the organization into a cohesive whole. Roehling concludes that "earlier waves of mergers among distant partners did not work as well from a management perspective, but now communication substitutes for transportation, making a large firm much easier to run." ■

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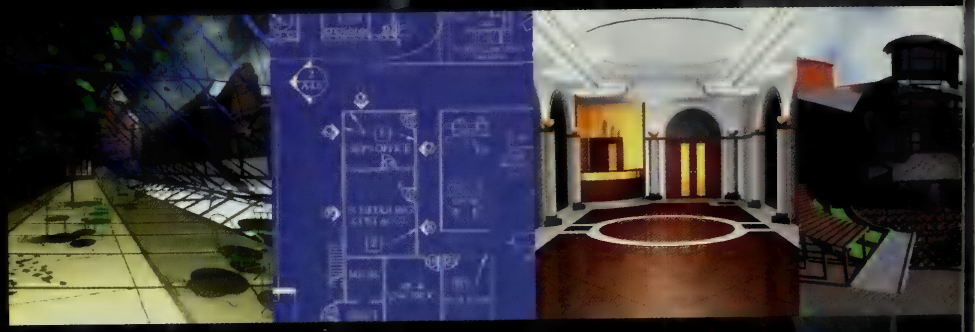
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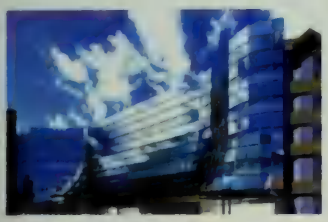
CIRCLE 64 ON INQUIRY CA

Six new packages with a focus on CAD

By Jerry Laiserin, FAIA

New name, same quality

VectorWorks Architect, Diehl Graphsoft



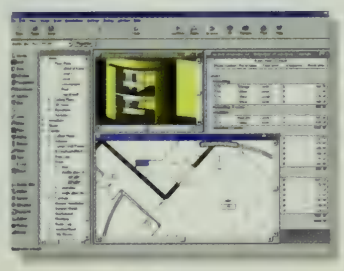
VectorWorks creates 3-D images like this one quickly.

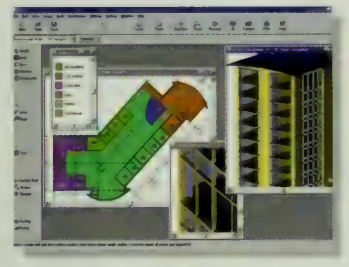
Big-name, big-budget CAD tools often impose extensive overhead in drawing file setup. So, many architects keep a copy of MiniCAD around for quick 3-D studies, interior perspectives, and so on. Recently renamed VectorWorks, the former MiniCAD is a general-purpose design tool. The latest version, VectorWorks Architect, expands the product's architecture-specific capabilities with a range of tools for walls, roofs, and stairs, plus libraries of architectural components, such as windows and doors.

Windows and Mac versions of VectorWorks reflect the original MiniCAD's ease of use. Drawing setup is simple, 3-D models are easily extruded from plans, and rotatable perspectives are quick to do. The new architectural components merge seamlessly with the rest of the interface, offering drag-and-drop convenience for most design tasks.

MiniCAD always delivered a high level of functionality for a low price. VectorWorks extends that value into the emerging realm of object-oriented CAD—all of the software's new tools and libraries are actually integrated software objects; the computer representation of a door has a degree of data awareness rather than being just a dumb collection of line segments and arcs.

Unfortunately, architectural objects created in this program generally do not retain their "intelligence" when transported to another program—a problem that is not unique to VectorWorks. The software nevertheless maintains a price performance edge over its competitors.





At last, Revit delivers 3-D CAD.

System requirements: Pentium PC with Windows 95/98/NT4.0/2000, 32MB RAM (64MB for NT), and 100MB free disk space; or Power Macintosh with System 7.5 or better, 48MB RAM, and 100MB free disk space.
Contact: Diehl Graphsoft, 10270 Old Columbia Road, Columbia, Md. 21046; 410/290-5114; www.diehlgraphsoft.com

Rev it up!

Revit, Revit Technology Corp.

Revit, a radically new software system from a startup company, delivers on the formerly unfulfilled promise of 3-D CAD for architecture. Although there are some minor gaps in this initial release, Revit's benefits are so compelling that all architects, regardless of the CAD system they are now using, should consider it. This is software that fits the architectural design process as smoothly as an Armani suit.

CAD researchers have long known the benefits of "object CAD," or the ability to link 3-D architectural CAD entities, such as doors and windows, to data, such as sizes and quantities. But it wasn't until powerful hardware at low prices became widely available that CAD software developers added object-oriented capabilities to existing software. The founders of Revit have an additional advantage over other CAD vendors: they are from a CAD company, Parametric Technology, that specializes in mechanical design. As a result, they approach CAD for architecture with a blank screen and an unbiased keyboard. The resulting software is fresh and functional.

In Revit, everything is an object, from the obvious drawings, models, and components, to the less expected schedules, notations, and dimensions. Need to resize a door? Edit it on the plan, elevation, section, perspective view, or even the door schedule, and all other views update automatically. This ability to coordinate every view delivers time savings and quality improvements that many other CAD programs rarely deliver.

Add in a no-risk, pay-as-you-go licensing scheme with in-depth Internet support, plus full AutoCAD compatibility, and the resulting package is virtually unbeatable. The only minor drawbacks for early adopters will be the absence of Microstation compatibility and some limitations in developing large-scale detail drawings. But these should be worked out within months, according to the company.

System requirements: Pentium PC with Windows98/NT/2000 and Internet connection.
Contact: Revit Technology Corporation, 300 Fifth Avenue, Waltham, Mass. 02451; 781/839-5300; www.myrevit.com

Next generation CAD

ARRISCAD-2001, Sigma Design International

An "arris" is a sharp edge produced by the meeting of two surfaces. This cutting-edge software has long been the 3-D architectural package of choice. Now, in its newest generation, ARRISCAD, sports an easy-to-use screen interface that enables officewide management of multiple projects.

Sigma Design International is one of the few CAD companies headed by a hands-on, practicing architect. That direction shows in the many convenience features geared to daily chores in the studio. While a fully interactive 3-D building model remains a mouse-click away, ARRIS goes out of its way to make the appropriate 2-D drawing tools and symbols easily available for the task at hand. For example, a palette of "repeated items," like columns and light fixtures, helps speed up plan layouts.

While the latest Windows interface still contains hints of ARRIS's 1970s origins on UNIX-based mini-

computers, the newly refined version is more powerful, yet much easier to use. Sigma's emphasis on ease of use extends to the purchasing and setup of the system, with the software available already installed on select preconfigured versions of leading PC brands like Micron and Dell. These system bundles offer outstanding savings in money and time. Unlike many competing vendors' "shrink-wrap" product offerings, ARRIS comes with extensive training, support, and consultation options.

Contact: Sigma Design International, 7228 England Drive, Alexandria, La. 71303; 888/990-0900; www.arriscad.com

Staging a comeback
DataCAD 8.5, DataCAD LLC

In the early days of DOS-based PCs, DataCAD's keyboard shortcuts and special macro commands made it a standout for architectural productivity. There was even a time when DataCAD bore the imprimatur of the AIA. But a succession of managerial and ownership transitions and shifting marketing strategies paralyzed product development during the crucial transition from DOS to Windows. With version 8.5, DataCAD is staging a comeback.

DataCAD, as the name implies, was an early adopter of linkages between drawing elements and external data, such as a bill of materials. Though not as sophisticated as the drawing and data links in newer object CAD programs, the links in DataCAD serve the needs of nearly 200,000 registered users. Similarly, the [illegible] interface emphasizes conve[illegible]need in 2-D drafting [illegible]hat users tell the [illegible]t, even though [illegible]available in

The plethora of task-specific tools and commands cluttering the screen interface and the underlying code is problematic. It's confusing to novice users and unwieldy for the program developers. DataCAD is, however, still the best low-cost, full-featured tool for architectural drawing.

System requirements: Intel 486 processor or better, with Windows 95/98/NT4.0, 32MB RAM (64MB for NT), and 100MB free disk space. *Contact:* DataCAD LLC, 20 Tower Lane, Avon, Conn.; 860/677-4004; www.datacad.com

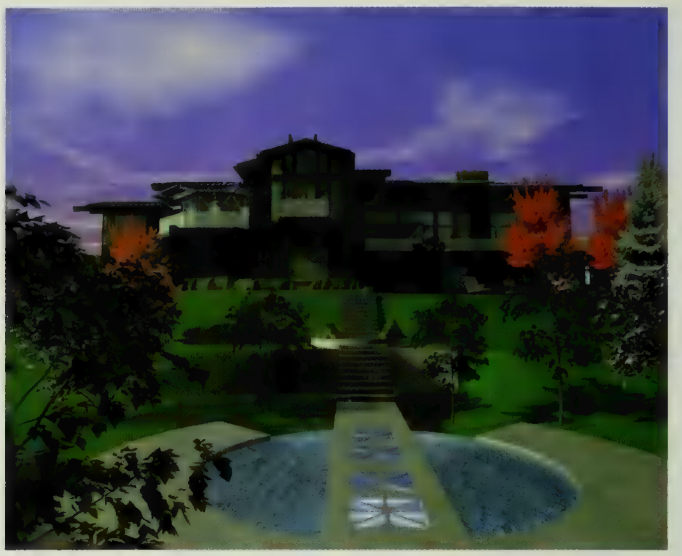
Old pro learns new tricks
ArchiCAD6.5, Graphisoft

Considered one of the best 3-D CAD programs for architecture, ArchiCAD strengthens its position with the powerful new features in its latest release. Among these is a new drawing management capability for reference files, called hotlinking, which makes this version suitable for small and large projects.

Here's how it works. When CAD first emerged on the primitive PCs and Macs of the early 1980s, software developers had to scale their ambitions to the file-size limitations of the available hardware. Many chose a system of reference files whereby parts of a drawing or project were parceled out among multiple files that referred to each other. This system kept file sizes manageable so firms could handle larger projects.

However, this approach works better for 2-D drafting than for integrated 2-D and 3-D design, called "virtual building." The developers of ArchiCAD use an integrated 3-D virtual-building approach, with all the design elements and related data in one project file. By adding the reference-file capability of hotlinks to its virtual building model, ArchiCAD now combines the best of both worlds.

ArchiCAD is one of the few architecture-specific CAD programs still available for both PCs and Macs and allows users to switch easily between 2-D and 3-D work modes. The software is marred by its limited Internet connectivity, at least compared to its competitors, but that is a small quibble in an otherwise world-class product.



This estate was designed by MontAlto Architecture using the new ArchiCAD 6.5. This version permits hotlinking among reference files.

System requirements: Pentium PC with Windows95/98/NT4.0/2000, 64MB RAM, and 300MB free disk space; or Power Macintosh with System 7.5 or better, 96MB RAM and 200MB free disk space. *Contact:* Graphisoft US Inc., 235 Kansas Street, San Francisco 94103; 415/703-9777; www.graphisoft.com

Sharing updated files
EZ, Sigma Design International

The World Wide Web was expected to become one of the great equalizers, enabling anyone who owned a computer equipped with a browser to view any file created in any program on any other computer anywhere in the world.

Web browsers, however, simply present files drawn from elsewhere, usually a centralized server. But because architectural drawings, documents, and data are updated and changed around on local computers, the material on the centralized server is likely to be out of date. Project extranet services that rely on copying files to a centralized server suffer from this drawback as well.

Independent of the Web, however, any Internet-connected computer can be a server, making local documents available to others without first dragging copies around to central servers. Viewing files collaboratively, wherever they might be, with neither a Web browser nor a centralized Web server, is the mission of EZ.

Initially marketed as ARRISview, to identify it as a viewing tool for ARRISCAD files, EZ also allows users to view and mark up any file. None of the collaborators need the software that created the file, and virtually unlimited users in diverse locations can concurrently share an interactive view of a file. Because only the changes to files are transmitted, the responsiveness of communication is much faster than browser-based file viewing. Though it is not free, as most browsers are, EZ is inexpensive for its power and functionality.

System requirements: Pentium PC with Windows 95/98/NT4.0/2000, 16MB RAM, and Internet connection *Contact:* Sigma Design International, 7228 England Drive, Alexandria, La. 71303; 888/990-0900; www.ezarchitect.com ■

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New Products

Commercial door manufacturers and specifiers can expect positive-pressure fire testing to become a more prevalent issue in the industry, according to John Geniesse, technical manager of the Door and Hardware Institute. ADA requirements also remain an important concern for the melange of commercial doors available. *Rita F. Catinella*



20-, 45-, 60-, AND 90-MINUTE POSITIVE-PRESSURE FIRE DOORS OFFER CODE COMPLIANCE

With the acceptance of 1997's Uniform Building Code (UBC) 7-2, the International Conference of Building Officials dramatically changed the standards for design, testing, and certification of fire-rated opening protection systems to more accurately reflect real fire conditions. For a door to be labeled in compliance with the code, the labeler needs to know the details of the final installation, including hardware, frame type, lite kit, and gaskets to be used.

VT Industries has developed a line of positive-pressure doors that meets UBC 7-2-1997 requirements. In a positive-pressure burn cycle, the face veneer burns off and a ½-inch edge strip burns off; then, an intumescent layer expands to seal off the opening from smoke. VT doors arrive at the site ready to hang, while most other fire-door systems require application of an exposed intumescent seal to the door jamb. VT engineering has built all the positive-pressure requirements into the doors, making installation simple. The doors do not require a special frame, special hardware, or additional time or expense, and some VT doors do not require intumescent material in the door to meet UBC 7-2-97.

Doors are available with wood veneer and high-pressure decorative laminate faces and can carry fire ratings up to 90 minutes. To achieve "S" rating, a fire-rated smoke gasket (supplied by others) must be applied around the perimeter of the frame. Approved hardware includes mortise locks, cylindrical and card locks, deadbolts, and standard hinges.

Twenty- and 45-minute fire doors can use up to 1,296 square inches for lites; 60- and 90-minute fire doors can utilize up to 100 square inches for lites. Larger lite sizes are available using special materials. 800/827-1615. VT Industries Inc., Holstein, Iowa. **CIRCLE 200**

GARAGE DOORS OFFER LEVELS OF VISIBILITY



The AlumaView Model L (top) features a 1 ¾-inch-thick door with a durable narrowline rail construction. Available with or without sectional aluminum panels, this model has a maximum opening width and height of 14 feet. It is available in any of Raynors' 187 ArmorBrite colors or with a clear anodized finish.

Raynor's StyleForm Commercial Decade ShowCase model (bottom) features a woodgrain texture, two-sided steel design, galvanized steel track, and durable, steel-wheel, ball-bearing rollers. 800/4-RAYNOR. Raynor Garage Doors, Dixon, Ill. **CIRCLE 202**

FOLDING GLASS WALL OFFERS AN ALTERNATIVE TO TRADITIONAL SLIDING-GLASS DOORS

Traco Skytech Systems' Mirage folding-glass wall, shown here at the Back Bay Brewing Company in Boston, offers an alternative to common sliding-glass doors. The product provides a 92 percent opening and is easily integrated into an existing structure or new construction. The glass wall is available in standard units up to 20 feet wide by 6 feet, 8 inches high and in custom units up to 10 feet high. A custom-manufactured trolley system with fully sealed bearings and nylon rollers supports the weight on the floor, allowing the user to open and close the accordionlike door with ease. The standard wall comes with Low-E double-insulated glass, heavy-duty aluminum framing, and a flush-bolt locking system at the top and bottom of every second panel. 570/752-1111. Traco Skytech Systems Inc., Bloomsburg, Pa. **CIRCLE 201**





► Stainable steel doors

Madera stainable steel doors have a rich grain pattern engraved in their steel sheets. The embossed six-panel doors (with narrow lite or half glass) feature wood-grainlike engraving in the same direction as the stiles and rails. These doors are available in 6-foot, 8-inch and 7-foot heights for use in up to three-hour positive-pressure fire openings. 615/661-5030. Ceco Door Products, Brentwood, Tenn. **CIRCLE 203**

▼ Revolution of the masses

The Crane Fulview Door Company manufactures custom and standard revolving doors in aluminum, bronze (muntz metal), stainless steel, and wood and offers a selection of power-assisted, two-way security, and exit-only doors. Crane Fulview's revolving door was intended to capture attention at the Cheesecake Factory in Chicago, designed by architect Jordan Mozer. The satin-finished bronze enclosure and soffit fit into the custom entrance of the restaurant. The door features painted wood wings with oval glass. Other installations include the Milwaukee County Courthouse and the NBA Store in New York City. 800/94-CRANE. Crane Fulview Door Company, Lake Bluff, Ill. **CIRCLE 204**



▼ Intumescent-free fire doors

By using Firestop I and Firestop II products in 20- and 45-minute fire-door assemblies as stiles and rails, Georgia Pacific can offer intumescent-free positive-pressure constructions for UBC 7-2-1997 compliant fire doors. 800/BUILD-GP. Georgia-Pacific Corp., Atlanta. **CIRCLE 205**







◄ No visitors allowed

The Rasco Industries' Bug Blocker overhead screen-door system can be installed behind existing rolling steel doors to reduce pest infestation while providing necessary security, cooling, and ventilation. The tight-fitting rolling screen door is designed for manufacturing, food-processing, and warehouse facilities, among others. Once mounted, either door—screen or steel—can be operated independently to regulate airflow. 612/479-6097. Rasco Industries Inc, Maple Plain, Minn. **CIRCLE 206**

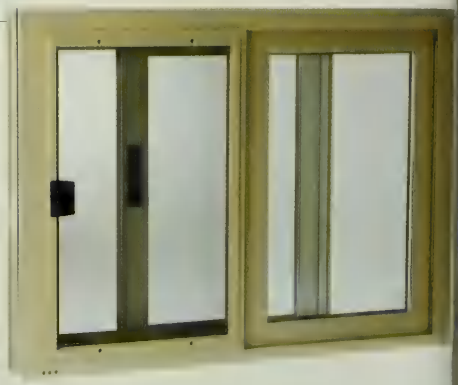
► Door frames in a snap

Chicago Metallic's prefinished door/frame systems achieve a professional look that eliminates the need for painting on the job site. Easily installed by one person, the frames attach to wood or metal studs and can be erected in less than 10 minutes. The casings are mounted on the preinstalled clips, thus concealing all mounting fasteners. 800/323-7164. Chicago Metallic Corp., Chicago. **CIRCLE 207**



► Heavy-duty sliding doors

Wausau's sliding doors are ideal for extreme climates, such as wet and windy coastal regions. High-rise offices, hotels, condominiums, and apartments needing water resistance and severe structural loading protection are well suited for the sliding doors. Wausau's Series 5100 bead-glazed sliding doors meet the industry's most stringent requirements and have been tested to AAMA AW60 ratings. Integral blinds can be added for privacy and easy maintenance. The doors come in seven finishes or custom colors for matching both exterior and interior color schemes. Insect screens can also be finished to match the window color. 877/678-2983. Wausau Window and Wall Systems, Wausau, Wis. **CIRCLE 208**



Think Positive.



For Positive Pressure Requirements with Aesthetic Appeal,

Think VT.

Life Safety Standards

New fire door requirements are now code per UBC 7-2-97. Positive pressure testing more accurately reflects real fire conditions. VT Industries has responded with door construction that addresses life safety standards while maintaining the visual integrity of the total opening including the VT Edge.

Innovative Construction

The VT fire label is your assurance that door construction meets your specification. All positive pressure requirements are built into the VT door per Category A guidelines as outlined by ITS/Warnock Hersey.*

Design Options

Select from SolidStyle™ wood veneer and PermaClad™ decorative laminate doors to complement any project design. Take one look and you'll agree that for positive pressure fire door requirements with aesthetic appeal, think positive. . .think VT.



VT INDUSTRIES Your Edge
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* Where smoke & draft control is required by local codes, an approved smoke gasketing must be added to the frame.

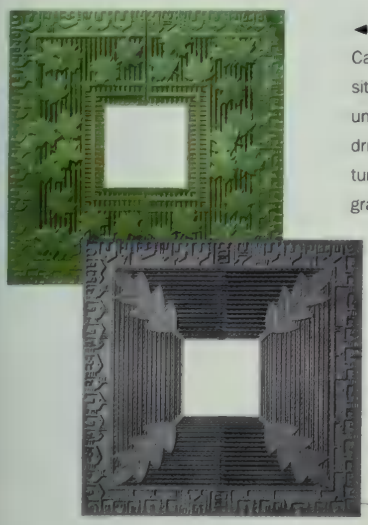
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Products Briefs

One of the best ways to appreciate a city is to step outside it for awhile, and what better place to do that than in a public park or garden? The products below can help turn any landscape into a sanctuary. *Rita F. Catinella*



◄ Detailed metal tree grates

Canterbury International is a full-service site-furnishings company, offering clocks, umbrellas, seating, trash receptacles, drinking fountains, bollards, and sculptures for public spaces. All metal tree grates are available in cast aluminum, cast iron, or cast bronze; some models are available in stainless steel. Three-, four-, five-, and six-foot square, round, or half-square/half-round sizes are available. All grates are ADA compliant. 800/935-7111. Canterbury International, Los Angeles. **CIRCLE 209**



▲ Sleek-styled teak

Country Casual offers a complete line of classic English-style solid teak garden furniture. The company's new solid teakwood bench and armchair possess a scalloped toprail, curving armrests, and a specially engineered seat section designed for comfort. Maintenance-free without paint or preservatives, natural teak weathers to a silvery gray patina. Country Casual's timber is sourced from countries with a commitment to replanting their trees. 800/284-8325. Country Casual, Gaithersburg, Md. **CIRCLE 210**

► International inspiration

The Copenhagen Bench is offered in two sizes for either two or three people. The frame is powder-coated cast iron, and the slats are made of Pau Lope, a durable, responsibly produced hardwood resistant to moisture, insects, and vandalism. 877/929-0011. SiteForm+, Forms + Surfaces Company, Carpinteria, Calif. **CIRCLE 211**





◄ Fountain of youth

After analyzing historic site photos, Robinson Iron faithfully recreated this cast-iron fountain, as well as the circular Gothic fencing and railing around Brooklyn Borough Hall, in Brooklyn, N.Y. The fountain is the focus of a multimillion dollar project in this urban setting. Custom gazebos, columns, entrances, and facades are also possible. 800/824-2157. Robinson Iron, Alexander City, Ala. **CIRCLE 212**



▲ Happier trails

The Presidential Trail at Mt. Rushmore was surfaced with Trex Easy Care Decking to ensure no splinters for visitors and to reduce the amount of upkeep needed. Trex is made with recycled and reclaimed plastic and wood and requires no special tools or fasteners. 800/BUY-TREX. Trex Company, Winchester, Va. **CIRCLE 213**

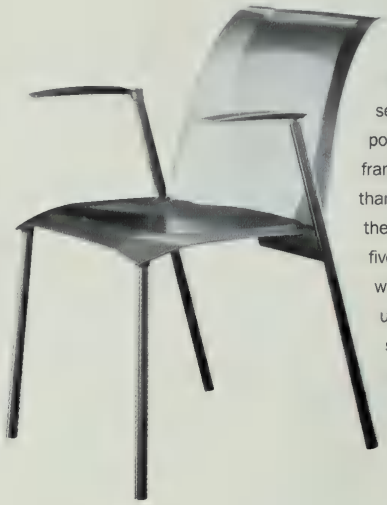
► Durable furnishings

The Plainwell Bench's sturdy, powder-coated cast-aluminum frames resist rusting, chipping, peeling, and fading. Seating surfaces are available in ipe, jarrah, oak, or maple. Ipe and jarrah are exterior hardwoods that are difficult to mar. They weather to a soft pewter-gray finish that requires no maintenance. Plainwell litter receptacles also have powder-coated, cast-aluminum frames. Side panels may be specified in wood or extruded aluminum. The durable polyethylene top is attached by a cable to prevent the bench from getting lost or stolen. 800/521-2546. Landscape Forms, Kalamazoo, Mich. **CIRCLE 214**





▲ Recognizable features
Tectan is a new formaldehyde-free chipboardlike material for wall panelings, flooring, furniture, and architectural interior decorations. The material is made from 100 percent recycled beverage cartons, yogurt cups, and other waste. Throughout the manufacturing process, the cartons are treated in such a way that no other materials (such as toxic glues) are needed. The surface is coated with a water-resistant recycled foil. Tectan offers good sound proofing and insulation and can be recycled itself. 410/581-2610. Richter USA Inc., Owings Mills, Md. **CIRCLE 215**



◄ Initial design
The Fog chair, designed by Frank Gehry, FAIA, features a contoured seat, back, and armpads made of polished, anodized cast aluminum; its frame is tubular stainless steel. A urethane spring mechanism attached to the chair back allows for a subtle, five-degree articulation. Available with or without arms, Fog can be used indoors or out. The chair is the second furniture design developed by Gehry in collaboration with Knoll, and the name appropriates the architect's initials. 212/343-4000. Knoll, New York City. **CIRCLE 216**

► Rounding out the selection
Marvin's Clad Ultimate Double Hung Round Top window is available in eyebrow and spring line configurations and is engineered to allow both sash to operate. The window offers paintable or stainable jambs and site lines that match Marvin's original Clad Ultimate Double Hung window. 888/537-8268. Marvin Windows and Doors, Warroad, Minn. **CIRCLE 217**



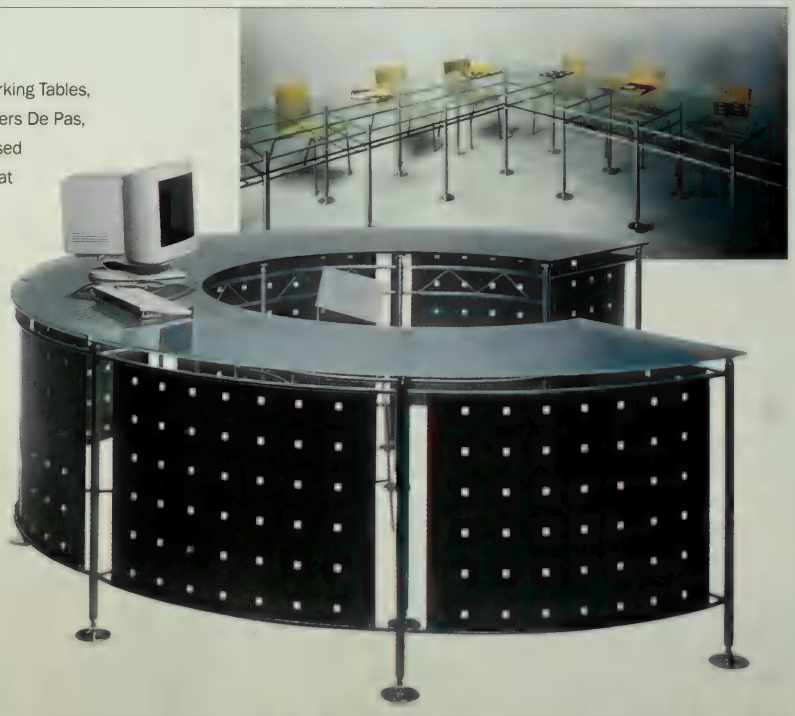


► Snappier panels
USG has begun a new process to manufacture the company's flagship Sheetrock brand gypsum panels. The panels are now easier to install than traditional gypsum panels, resulting in faster hanging time and fewer callbacks for contractors. The panels snap more crisply and the edges require much less rasping time than other types of drywall. The board's added strength makes it more rigid and easier to carry and hang. 800/USG-4YOU. USG Corporation, Chicago. **CIRCLE 218**



▲ Cool fridges
Sonrisa is offering a European-designed enameled-steel refrigerator in 200 colors. Featuring a large cooling area and small freezer section, the retro-industrial styled fridge is big enough to accommodate more than 8.5 cubic feet of food storage. 323/935-8438. Sonrisa Furniture, Los Angeles. **CIRCLE 219**

► Zero plus one
Zero US Corporation's Working Tables, designed by Italian designers De Pas, D'Urbino, Lomazzi, are based on a modular structure that allows for a range of functions, configurations, and aesthetic results. A single set of components can produce extendable conference and meeting tables, bar and restaurant tables, reception desks, retail check-out counters, or computer workstations. 401/724-4470. Zero U.S. Corporation, Lincoln, R.I. **CIRCLE 220**





INSPIRED DESIGNS NOW ARRIVING AT GATE A

Contemporary yet historical. Beautiful yet secure. And it had to give more than three million parking patrons a well-marked path to their flight. From the beginning, the new garage at National Airport was a study in contrasts.

The finished project is a shining example of steel and glass block. Pittsburgh Corning Glass Block. "We started with the vertical elements of the garages — the elevator towers — and using the VUE® pattern, turned it into a virtual wayfinder system. Then, we continued that theme with small wayfinder devices — information pylons using ESSEX® AA — throughout the interior of the garages."
– Graham Davidson, architect

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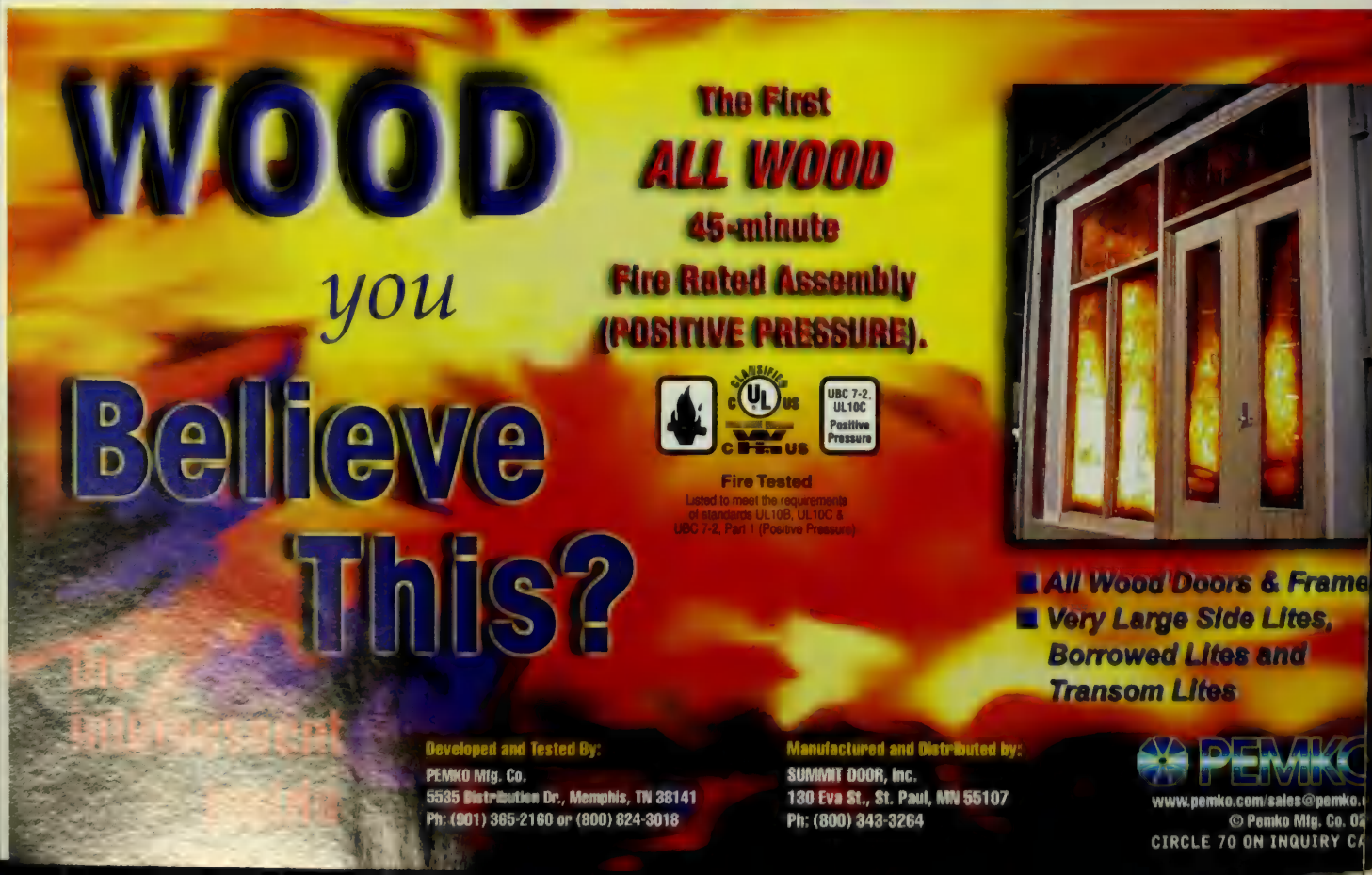


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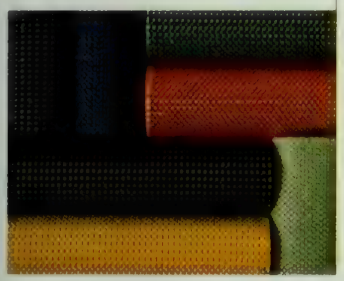
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Product Briefs

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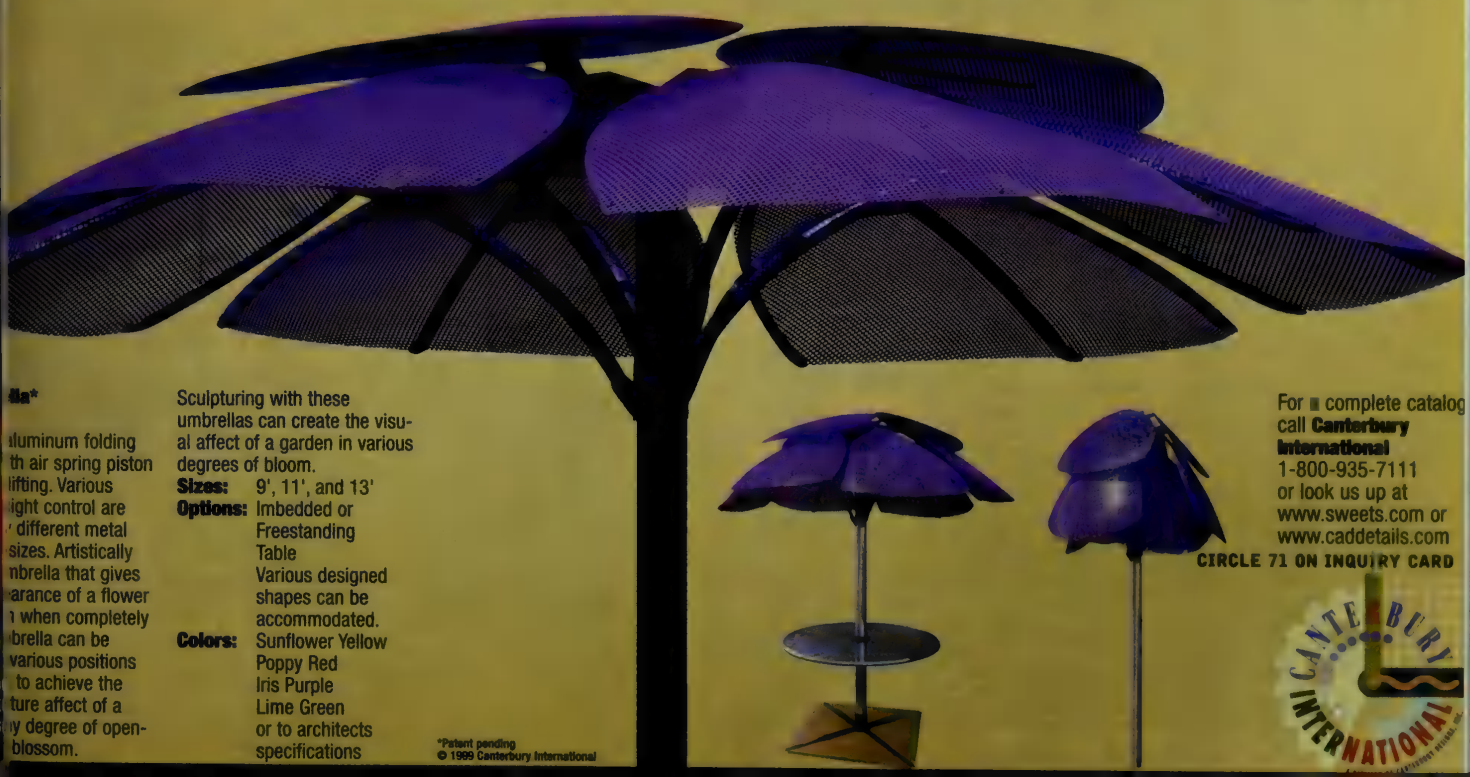
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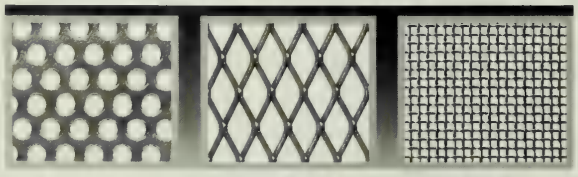
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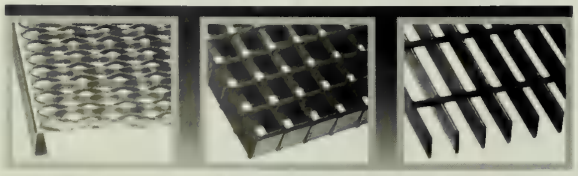
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Product Literature

Indirect-lighting brochure

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Fire-rated glazing

TGP has released a new fire-rated-glazing brochure featuring installation photography, product descriptions, and specifications. 800/426-0279. Technical Glass Products, Kirkland, Wash. **CIRCLE 228**

Exterior-siding CD

Reynolds Building Products introduces its new *Picture Perfect* computer software program that allows users to coordinate exterior siding and accessories in a variety of colors and styles. 800/528-0942. Reynolds Building Products, Macedonia, Ohio. **CIRCLE 229**

Know your hardwoods

The Hardwood Manufacturers Association has published *Guide to American Hardwood Species.* The booklet profiles the 21 major commercial U.S. hardwood species and includes general descriptions, working properties, physical properties, and typical uses for each. 800/373-WOOD. Hardwood Manufacturers Association, Pittsburgh. **CIRCLE 230**

Improve IEQ in schools

A brochure from Steril-Aire describes how schools may use UVC germicidal lights to enhance indoor environmental quality (IEQ) and reduce maintenance and energy costs. 562/467-8484. Steril-Aire Inc., Cerritos, Calif. **CIRCLE 231**

Y2K-compliant door brochures

Woodfold-Marco introduces its completely updated accordion-folding-door and roll-up door brochures. All accordion and roll-up doors are custom-made to size. 503/357-7181. Woodfold-Marco Mfg. Inc., Forest Grove, Ore. **CIRCLE 232**

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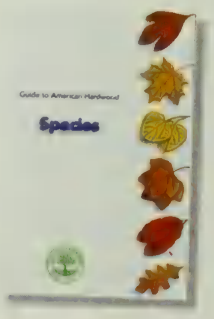


A variety of fluorescent lighting products **www.lamarlighting.com**

Information on electronic and magnetic lighting ballasts and controls **www.magnetek.com/ballast**

Specification guidelines for North American hardwood interior applications **www.hardwoodcouncil.com**









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Product Literature

doors; storefronts; and curtain walls are all available in as soon as 15 days. 800/221-4169. EFCO Corporation, Monett, Mo. **CIRCLE 236**

Mantel catalogue

A detailed catalogue features Pinecrest's mantel collection, which consists of nearly 300 designs taken from the 18th, 19th, and 20th centuries. 800/443-5357. Pinecrest, Minneapolis. **CIRCLE 233**

Sealing-systems catalogue

Zero International's 2000 catalogue features new products, listings, specification guidance, and full-size schematics for hundreds of components and integrated systems for blocking air, light, and sound, as well as flames and smoke. 800/635-5335. Zero International Inc., Bronx, N.Y. **CIRCLE 234**

Residential windows

Andersen's *Residential Product Guide for Professionals* includes casement improvements, prefinished interiors, and hardware finishes. 800/426-4261. Andersen Windows Inc., Bayport, Minn. **CIRCLE 235**

Rapid-shipping program

EFCO has released new guidelines and product specifications for its express rapid-ship program. Projected, casement, fixed, sliding, and hung windows; sliding

Architectural woodcarving

A free CD-ROM called *Digital Art Library*, which contains computerized line drawings of wood-carved architectural design elements, is now available for professional architects, builders, and interior designers. 310/532-1400. Enkeboll Designs, Carson, Calif. **CIRCLE 237**

Workstation brochure

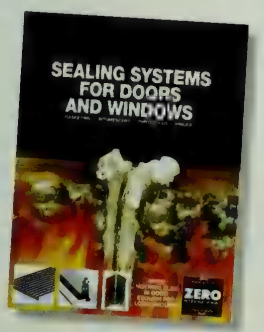
Haworth's new Premise brochure highlights the flexibility of the Premise workstation, along with reproducible floor plans and 3-D renderings of the system. 900/344-2600. Haworth Inc., Holland, Mich. **CIRCLE 238**

Rolling doors and grilles

Cornell Iron Works' new catalogue features rolling doors, fire doors, insulated doors, counter doors, grilles, and closures. 800/233-8366. Cornell Iron Works Inc., Mountaintop, Pa. **CIRCLE 239**

New lighting collections

Progress Lighting's five newest collections are featured in a comprehensive color catalogue. 864/599-6000. Progress Lighting, Spartanburg, S.C. **CIRCLE 240**

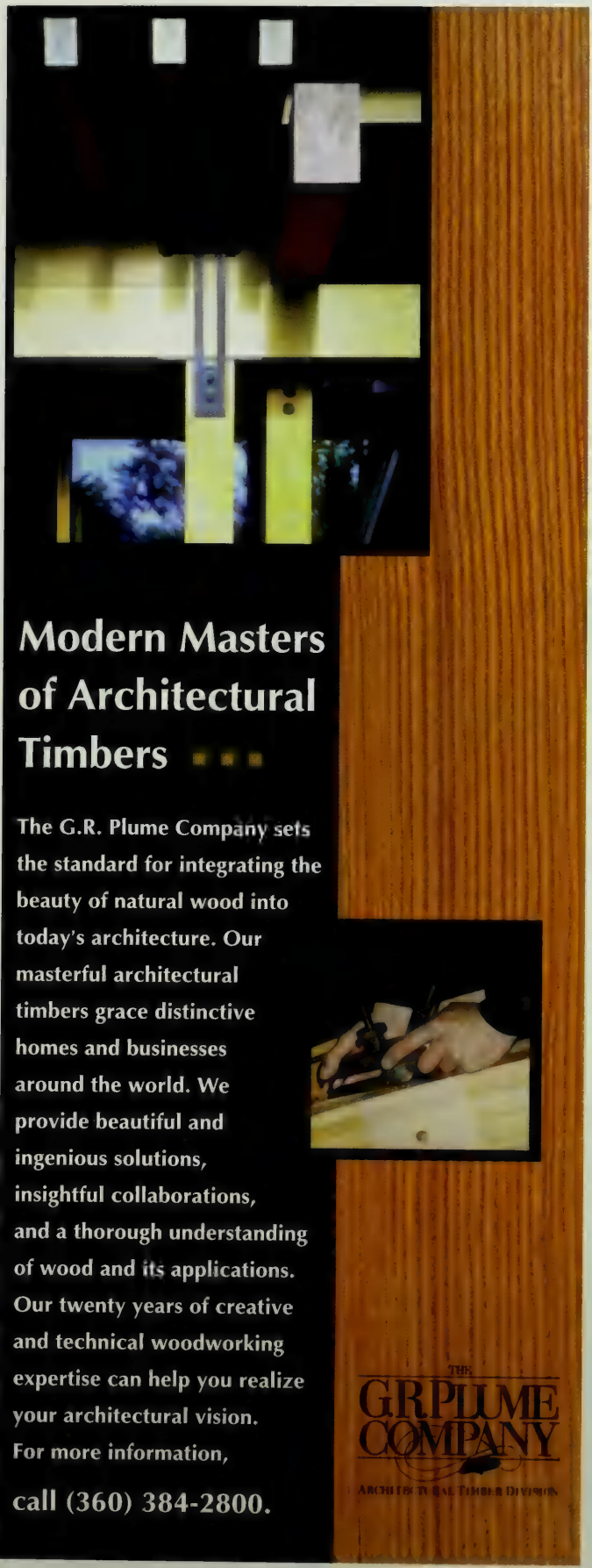








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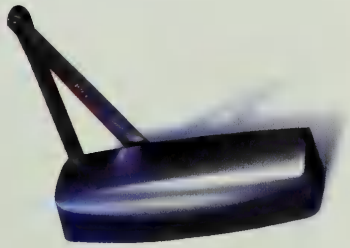


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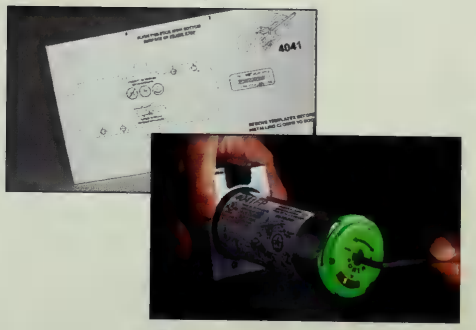
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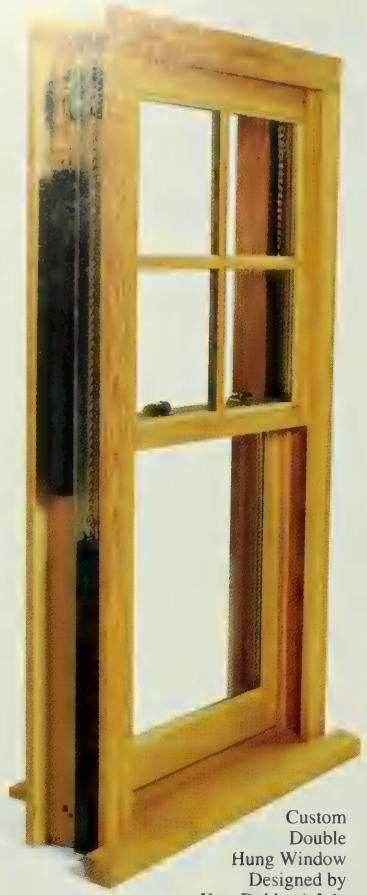
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SOM *continued from page 74*

years. Recognizing Bunshaft's remarkable oeuvre as well as the contribution of the entire firm, the AIA gave SOM the inaugural Firm of the Year Award in 1961.

In between heydays, there were some dark times in the firm. Not too long ago, rumors circulated that SOM—long considered one of the most venerable firms in the business—would close its doors. That was in the early 1990s, the period Childs refers to as "the depression." Rampant growth during the 1980s engendered bad habits and high overhead. In 1989, the firm's gross receipts reached a record $157 million; the staff peaked at 1,500. The sheer quantity of work cost the firm quality control. "We tipped too far toward becoming a big production firm," says Childs. "From a design standpoint, this was the lost generation." By 1993, the nationwide slump in the commercial real estate market had bankrupted a number of developer clients, more than halved revenues, to $67 million, and whittled the payroll to 557 employees. To make matters worse, there were lawsuits and countersuits with former partners precipitated by the firm's inability to pay the retirement income to which the partners alleged they were entitled.

Where no one lives on account of the pace

The crisis compelled SOM to revisit its entire approach to management, marketing, design, and project delivery. In so doing, the firm transformed its culture to a model much closer to what the firm's founders, Louis Skidmore and Nathaniel Owings, envisioned when they established SOM in 1936. Partner Mustafa Abadan, AIA, explains, "During the 1970s and 80s, the firm lost its direction. We have returned to our roots."

About a decade ago, SOM reinvented itself with an eye toward the future and positioned itself to ride the great wave it is currently enjoying—in terms of its design and planning skill but also vis-a-vis the firm's internal organization. At SOM's beginnings, Skidmore, with his legendary business acumen, was the managing partner. Management has always been embraced as a discipline at SOM, just like architecture, engineering, and urban planning. According to Gottesdiener, one of the office's managing partners, "My job is to balance design with the business side of architecture. It used to be only corporate clients who demanded this but my role has evolved to include all clients. In a sense, my responsibility is to the client first and the firm second. We believe that if our clients are doing well, we are doing well." More than half the firm's work comes from repeat clients, a tribute to the firm's ability to deliver good design while simultaneously managing the process in the client's best interest. Stephen Ross, chairman of The Related Companies and client for Columbus Centre and Random House, calls SOM "a firm that has the total capability to create a project that is beautiful and cost effective. They create great architecture but also speak the language of business."

When Gottesdiener began working for SOM, his role was creating construction documents. He says he had no idea he had an aptitude for business, but somebody did. Since the firm's beginnings, SOM has been known for sniffing out and nurturing great talent. For several of the firm's partners, including Abadan, Duffy, Taylor, and Gottesdiener, SOM was their first, and only, job. They stayed put because SOM gave them unusual opportunities. Marilyn Taylor recalls that, at age 27, she was on her way to running the Stations Program of the Northeast Corridor Improvement Project, which she directed from 1978 to 1985: "It was extraordinary that the partners of SOM thought that I could run that project. But somebody counted on me to do it. For the right people the opportunities here are great."

Nat Owings once said, "I've produced the people who produce the buildings." Few, if any, firms train and sustain successive generations as intensively as SOM does. Partners continually scan their ranks for successors. "The first thing I was told when I became a partner was that I had to find my replacement," says Gottesdiener. Duffy says the senior partners today are "sustaining the partnership by bringing along the next generation of people."

As a result, the firm has a deep talent pool that virtually ensures its longevity. These are the people who will lead SOM in the future. Despite the firm's age and venerable reputation, "we are hardly a conservative force," asserts Taylor. Gottesdiener says his firm is "a young firm right now, not in age but in attitude. We are reflective of the phenomenal change in the world and are testing old standards." While SOM's long legacy of good management and award-winning design work certainly factors into the New York office's current success, this spirit of experimentation and the desire to encourage a dialogue on "issues of our time, our place, our clients," in the words of partner Stephen Apking, AIA, will ensure that the firm has a lasting place well into the future. ■

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AMERICAN CITIES *continued from page 82* successful than "inelastic" cities, which he defined as those cities trapped within a hostile ring of suburbs. Elastic cities have less racial polarization and smaller income disparities and such metro areas also grew faster, asserted Rusk, a former mayor of elastic Albuquerque.

Antisprawl activists see metrowide planning agencies (such as Portland, Ore.'s elected metropolitan council) as better able to coordinate such sprawl-inducing activities as restrictive zoning, sewer extensions, and highway expansions. Such environment-enhancing activities as setting aside greenbelts and preserving sensitive ecological areas are best handled at the metro level, say environmentalists. Orfield says solutions to

IS ARCHITECT-DRIVEN EUROPEAN-STYLE PLANNING THE ANSWER?

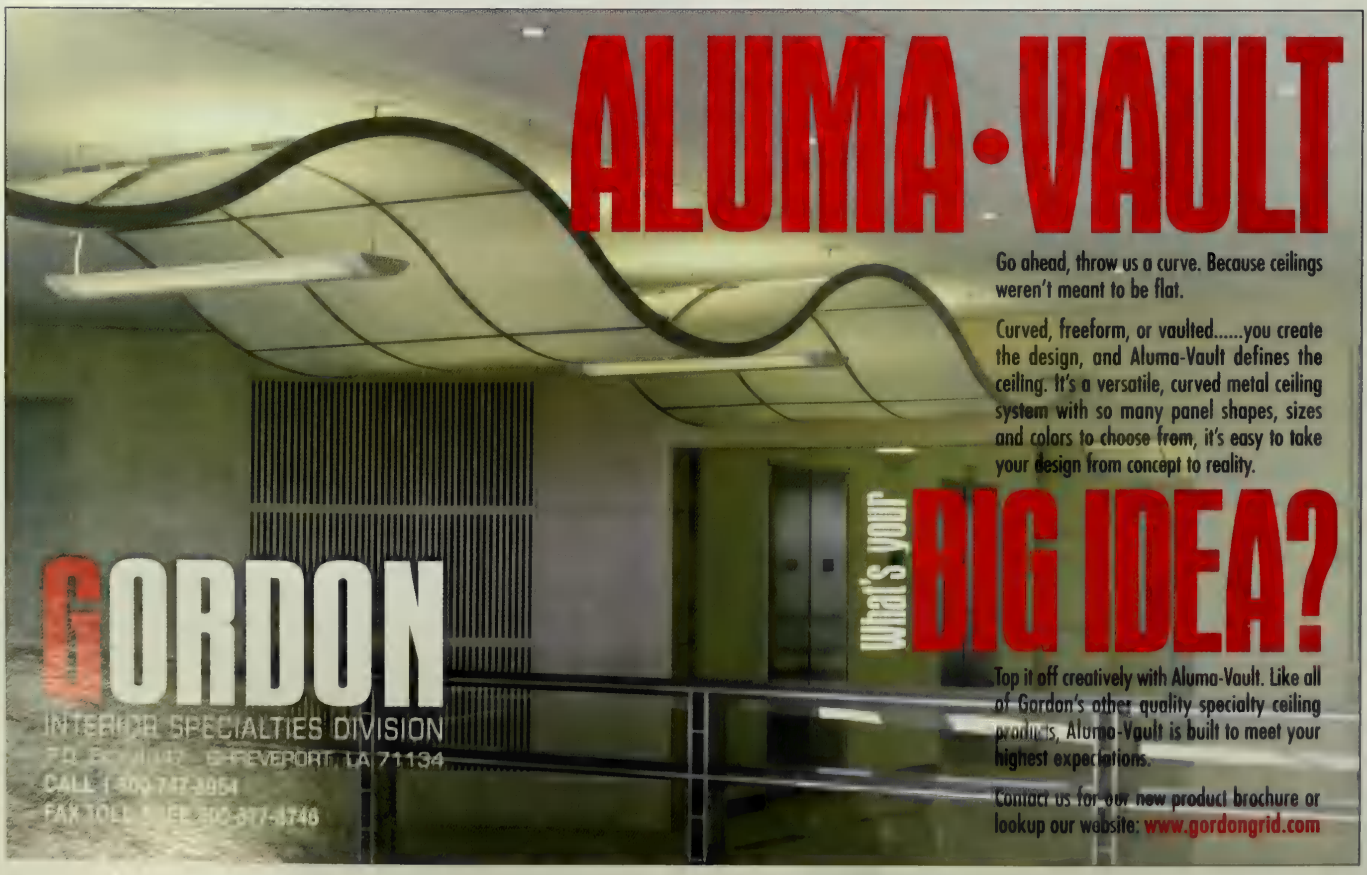
urban polarization can only be implemented on a metro level. He advocates tax-base sharing to give poorer communities a better chance to compete, and he wants to see privileged-sector barriers to affordable housing removed.

All these factors may portend a realignment of important government functions. Although numerous government entities exist that operate the utilities or coordinate highway planning within jurisdictions that unite cities and suburbs, few have broad planning powers or the dollars to back them up as such agencies often have in Europe and Asia. Planning across metropolitan areas could encourage higher density commercial and public development tied closely to transit and highway corridors. The benefits of a more European-style approach says Pietro Nivola in *Laws of the Landscape: How Politics Shape Cities in Europe and America* (Brookings Institution, 1999) are far fewer highway miles per person, far lower rates of land consumption, far more efficient use of transit, and a much higher percentage of trips taken by bicycle and on foot.

These successes would also seem to vindicate the much greater role architects play in the planning of cities, especially in Europe. Consider the Netherlands, which has long conferred enormous powers on planners and architects. The central government defines how much urban growth can occur, in which cities it can occur, and what land may be consumed. Local governments devise master plans—often made by architects—that further determine where commercial, institutional, and residential uses may go. Specific tracts are then master-planned to a more detailed level, then a developer may be chosen by the local government in another competition. At no stage is the owner's ultimate profit or preferred use judged more important than citywide planning and design criteria. In short, Holland is a country largely shaped by the vision of architects.

But Dutch people historically have shared far different values than Americans. They have trusted their future to planning agencies because they regard the good of the community to be more important than the aggrandizement of the individual (though there is now growing controversy about the degree to which design should come from above).

While the AIA and the Urban Land Institute (the chief think tank of the real estate industry) have signed on to many antisprawl "smart growth" initiatives, libertarian advocates are taking aim at the antisprawl agenda (the Dutch mode would be unthinkable). They urge recognition that American patterns of development, for better or worse, simply represent the collective decisions of landowners, writ large by developers as agents. Altering this system, they say, especially in pursuit of architects' taste in urban *(continued on page 208)*



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SUBURBAN CITIES *continued from page 206* development, tampers with [illegible]-minded American values.

Writer Gregg Easterbrook took up arms in the "pro sprawl" cause last year in the form of an article in *The New Republic* titled "Suburban Myth: The Case for Sprawl," which largely echoes the libertarian Reason Public Policy Institute's policy report, "The Sprawling Of America: In Defense of the Dynamic City" (www.rppi.org). Both contend that sprawl is not a significant problem, and that low-density settlement patterns reflect consumer desires, which should be respected. While analysts like Orfield argue that suburban subsidies "pull" residents

NO ONE CAN BE BLAMED FOR REGARDING THE URBAN FUTURE AS TOO ABSTRACT.

out of older cities, Reason and its allies argue that a substantial "push" comes in the form of higher taxes, higher crime, and poor schools found in older communities. It says that higher densities concentrate pollution and that infill development can be as environmentally damaging as leapfrog development.

Nivola notes some other crucial distinctions. Both the low-density American patterns of urban growth and the high-density European ones are undergirded by tax and other government policies. America subsidizes drivers and subsidizes the purchase of large homes on big lots. Our tax system penalizes savers and urges consumption. European housing subsidies are often tilted to lower-income renters in government-sponsored housing estates. All forms of consumption are taxed heavily, so that the purchase of a large house or luxury car is an expensive purchase indeed. Gasoline is also three to four times more expensive outside the U.S. and Canada, primarily reflecting added taxes. Noting that sales tax on autos is nine times higher in Holland than in the U.S. and 37 times higher in Denmark, Nivola says it should not be surprising that streets in Amsterdam or Copenhagen swarm with bicycles while hulking SUVs crowd American roads.

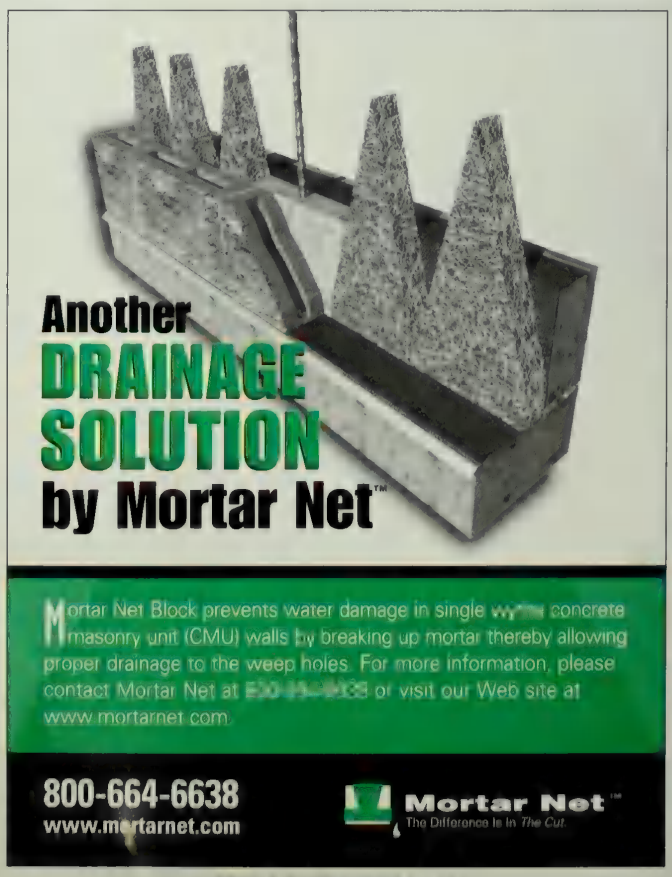
Likewise, Nivola thinks many of the measures promoted by antisprawl advocates won't work unless government policies are radically changed. But he does not think Americans would willingly adopt the European anticonsumption bias. This may be the most important lesson of all. Countless American urban renewal schemes failed in the face of taxation and other policies that powerfully drove investment in another direction.

No one can be blamed for regarding the urban future as too abstract, too policy-driven—just too overwhelmingly complex. But just as architects' forays into planning have often proved simplistic, the mechanisms of urban growth today operate with no overall goals and often at cross purposes.

And yet, the stakes are high in places like Park Forest. The shopping center is doing better, said Village manager Muchnik in a recent interview. But progress is hard won, she says, even in a robust economy. She can't offer the generous tax abatements the western suburbs can, nor the infrastructure, cultural, and recreational opportunities their commercial tax base can underwrite. "For us to support vital government services, taxes are higher, which prevents business from coming here," she explains. "It becomes a vicious cycle." She does not expect change soon, but "eventually people have to wake up and recognize that it is really in the best interests of the whole region to work together cooperatively." The Village, founded as an idealistic vision of emerging suburbia, is not willingly submitting to time's harsh hand. ■



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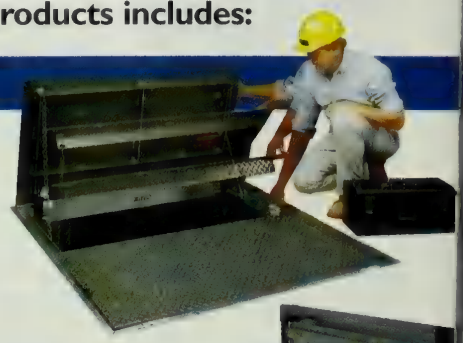
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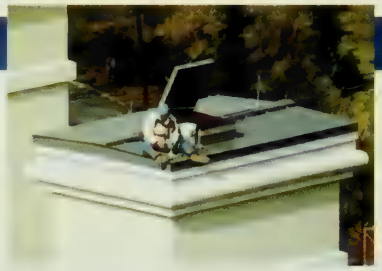
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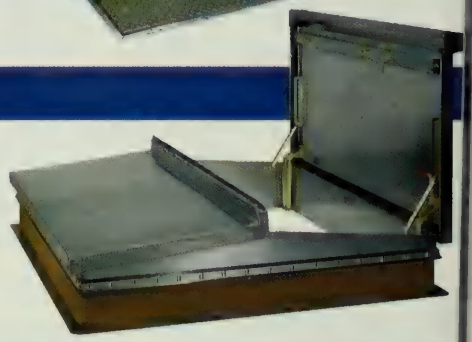
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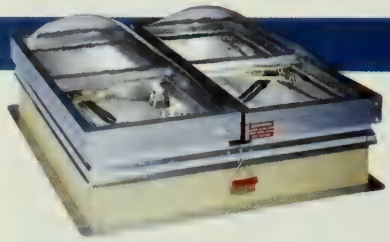




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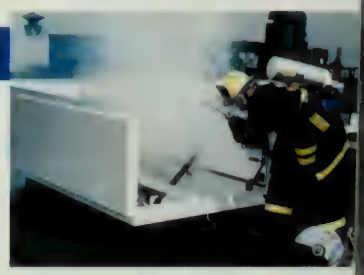
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Dates & Events

Calendar

At the End of the Century: 100 Years of Architecture
Chicago
Through March 12
A traveling multimedia exhibition highlighting major trends in 20th-century architecture. Museum of Contemporary Art. 312/280-2660.

ModernStarts: Places
New York City
Through March 14
An exhibition demonstrating how particular spaces, real and imagined, urban and rural, were conceived and represented by artists between 1880 and 1920. Museum of Modern Art. 212/708-9750.

The Architecture and History of the Garment District
New York City
Through March 15
An exhibit on the loft buildings of this industrial neighborhood in the heart of Manhattan, presented in conjunction with a lecture series and walking tours. The Urban Center. 212/935-3960.

Ten Shades of Green
New York City
March 23 - May 13
Critic Peter Buchanan has curated this major traveling exhibition of sustainable design work by Norman Foster, Thomas Herzog, Michael Hopkins, and Françoise Jourda. The Architectural League of New York. 212/753-9173.

A Century of Design, Part I: 1900-1925
New York City
Through March 26
The first in a series of exhibitions surveying 20th-century design of furniture, metalwork, glass, ceramics, textiles, jewelry, and drawings. The Metropolitan Museum of Art. 212/535-7710.

Smart Growth and Choices for Suburbs
Washington, D.C.
Through March 26
Sponsored by the Environmental Protection Agency and national associations of homebuilders and realtors, this display focuses on planning strategies for inner, middle, and fringe suburbs. National Building Museum. 202/272-2448.

Emerging Voices Lecture
New York City
March 30
The first in the Architectural League's lecture series features Tucson designer Rick Joy and David Miller of the Miller/Hull Partnership, in Seattle. Caspary Hall, Rockefeller University. 212/753-1722.

New York's Pennsylvania Stations
New York City
Through April 1
Photographs and renderings document both the now-lost McKim, Mead and White train station of 1909 and Skidmore, Owings & Merrill's proposed replacement. Miriam and Ira D. Wallach Art Gallery, Columbia University. 212/854-7288.

Triumphs of the Baroque
Montreal
Through April 9
An exhibition of European architecture from 1600-1750, with 30 large-scale models. The Montreal Museum of Fine Arts. 514/285-1600.

Scale: The Young Architects' Forum 1999
Washington, D.C.
Through April 16
On display are the Architectural League of New York's winners of its 18th annual competition for young architects. National Building Museum. 202/272-2448.

En chantier: The Collections of the CCA, 1989-1999
Montreal
Through April 30
Celebrating its 10th anniversary, the CCA displays the best of its collection of architectural drawings, renderings, models, and photographs. Canadian Centre for Architecture. 514/939-7000.

See the U.S.A.: Automobile Travel and the American Landscape
Washington, D.C.
Through May 7
This exhibition celebrates roadside architecture and the culture of the automobile, featuring photos by John Margolies, author of 10 books on the subject. National Building Museum. 202/272-2448.



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This gathering, titled "Illuminate 2000," promises the latest techniques and hands-on learning for lighting designers, specifiers, and project managers. Texas Christian University. 800/828-7134.

Ralph Rapson: Sixty Years of Modernism
Washington, D.C.
Through May 28
The first comprehensive exhibit of the work of this Midwestern modernist, whose achievements encompass architecture, furniture design, and urban planning. The Octagon. 202/638-3221.

Retail Lighting Conference
Fort Worth
June 7-9

Verner Panton Retrospective
Weil am Rhein, Germany
Through June 12
Danish designer Verner Panton's relentlessly colorful 1970s furniture and installations are presented. Vitra Design Museum. +49/762/1/702-3200.

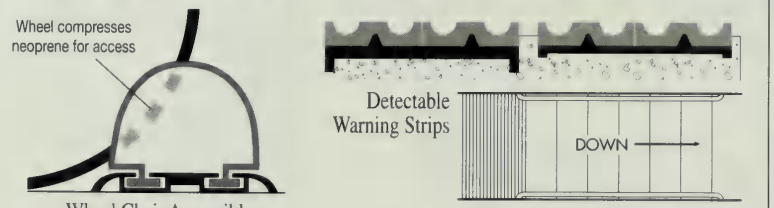
Frank Lloyd Wright: Windows of the Darwin D. Martin House
Washington, D.C.
Through August 20
An exhibition of some 70 art-glass windows, doors, and skylights (both originals and reproductions) that Wright created for the house. National Building Museum. 202/272-2448.

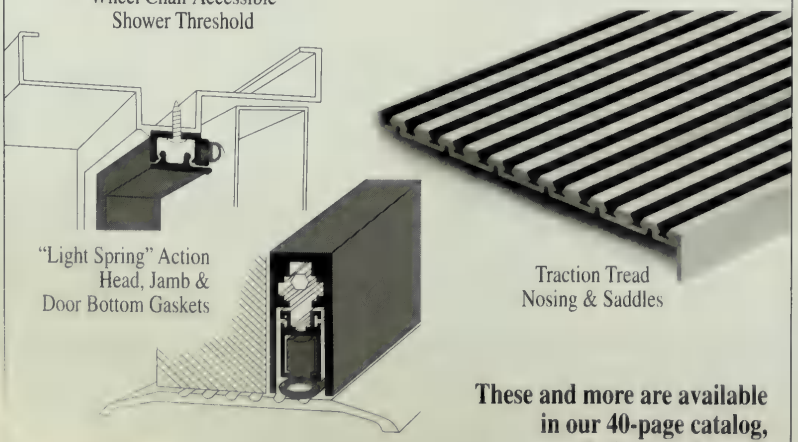
Harvard Asia Design Conference
Cambridge, Mass.
March 9–11
This conference will explore Modernism's inroads into Asia. Call 617/621-9963 or visit gsd.harvard.edu/asiagsd for more information.

Urban Wilderness—Chaos Transformed: Photographs by Irving Greines
Washington, D.C.
Through March 21
This California photographer takes on the streets of Manhattan, focusing on the ephemeral nature of the urban landscape. AIA Headquarters Gallery. 202/638-3221.

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Competitions

Best Practices in Affordable Housing
Entry deadline: April 30
The City Design Center at the University of Illinois seeks projects for an Internet catalogue of outstanding affordable housing in the U.S. Call 312/996-2076 or E-mail cdesignc@uic.edu.

Developments for Amphibious Living
Application deadline: March 1
Submission deadline: April 1
This ideas competition, sponsored by the Dutch province South Holland, is for designs that best show how living and working can take place in a watery environment. Entries will be made over the Internet. Information can be found at www.amfibischwonen.nl.

Ceramic Tiles of Italy Design Competition
Submission deadline: March 16
This awards program, with a $20,000 grand prize, recognizes outstanding projects (completed as of February 28) by North American designers using Italian Ceramic tile. To register: 718/783-3160 or E-mail abbatec@mindspring.com.

Business Week/Architectural Record Awards
Registration deadline: March 16
Submission deadline: April 18
This annual awards program recognizes distinguished collaboration between clients and architects to achieve strategic business goals. Entrants submit a mission statement and business plan describing how the project fits into an organization's overall goals. Eligible are public-

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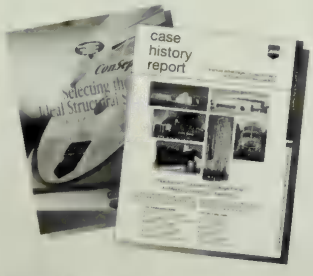


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CIRCLE 38 ON INQUIRY CARD

Dates & Events

and private-sector projects of any budget, both new construction and renovations, completed anywhere in the world since January 1, 1997. The jury includes Tom Peters, management expert and author of the business management classic *In Search of Excellence*, Jeanne Jackson, CEO, Banana Republic; Edward Ciffone, senior VP, Morgan Stanley Dean Witter; Carol Ross Barney, FAIA, Ross Barney & Jankowski Inc.; Julie Eizenberg, Koning Eizenberg Architecture Inc.; Robin Ellerthorpe, FAIA, OWP&P Architects; Henry Cobb, FAIA, Pei Cobb Freed & Partners; James O. Jonassen, FAIA, NBBJ; Wilson Pollack, FAIA, ADD Inc; and Jane Weinzapfel, FAIA, Leers Weinzapfel Associates. Winners will be featured in fall issues of *Business Week* and RECORD. To register, call 888/242-4240, or visit www.architecturalrecord.com.

AIA Young Architects Forum/Germantown, Pa., Habitat Competition

Submission deadline: April 1

This design competition coincides with the 2000 AIA convention in Philadelphia. "Building Livable Communities" asks entrants to design an urban rowhouse prototype for Germantown, Pa. The competition is open to young architects (licensed 10 years or fewer), architectural interns, and students. E-mail mottc@aiamail.aia.org.

Martin Luther King, Jr. National Memorial

Registration deadline: April 1
Submission deadline: May 1

Entrants in this international competition to design the King memorial for its site on Washington's Tidal Basin are asked to embody "the man, the movement, and the message." Anyone can enter; interdisciplinary teams are encouraged. To register, send a check for $75 accompanied by a letter listing the entrant's address, phone number, and E-mail address. Checks should be made out to "M.L. King Jr. National Memorial" and sent to Dr. E. Jackson Jr., Design Committee, Martin Luther King Memorial Project Foundation, Dept. 211, Washington, D.C., 20055. Visit cluser1.bellsouth online.com/mlk to know more. ■

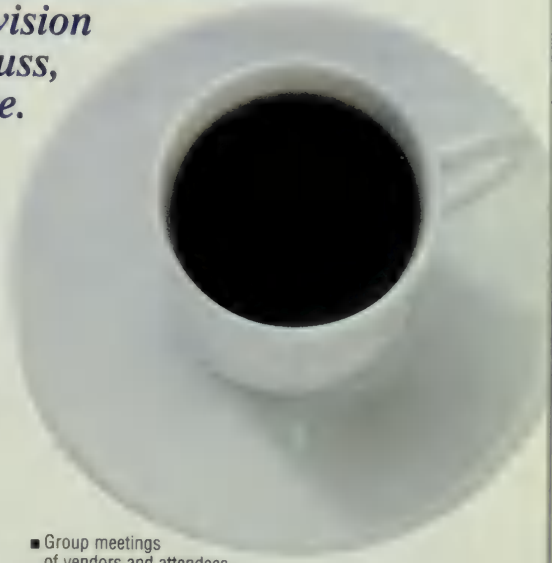
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Questions appear on page 160. To receive CES credits, fill in the education reporting form below or on our Web site (www.architecturalrecord.com).

1. The American Association of State Highway and Transportation Officials (AASHTO) in Washington, D.C., writes minimum design standards for pedestrian bridges and vehicular bridges with walkways (or bike routes). Its specifications for pedestrian bridges include recommendations for load, deflection, vibration, and connections. If the pedestrian bridge is in the public domain, designers must typically stay within these standards or even exceed them. If a bridge is privately owned, adhering to these standards is optional, although by using them, architects can limit their liability. Some state or local municipalities or highway agencies add their own safety requirements to the AASHTO standards.

2. Pedestrian bridges are often cable-stay, meaning the deck is supported by cables that stretch from a tower, usually in a fan array. These cables are then anchored at the other side of the tower. Cable-stay and suspension bridges are two of the most economical designs; they don't require as much infrastructure beneath the deck as truss or arch bridges. As a result, they can be closer to the street and, in many cases, shorter. They also have a more slender look.

3. Bridge materials need to be easy to maintain, resistant to vandalism and weather damage, and appropriate for the span. Local regulations and safety may also affect the choice of materials. Concrete is easy to maintain, but slender, elegant designs are difficult to achieve. Other materials, such as aluminum and stainless steel, offer different amounts of detailing options. Steel can be highly detailed, providing some relief, but it needs more maintenance because it must be painted. Wood and stone are suitable for shorter spans, but may be too bulky for large spans. The deck material must be durable, nonslip, and allow for water runoff or snow to be cleared off. Panels must often be cut into the deck material to allow access to the infrastructure.

4. Some communities are looking for a "signature bridge," an iconic design that identifies, and signals arrival at, their community. Pedestrian bridges, because they are normally smaller and lighter structures than vehicular bridges, allow more creative and dramatic designs.

5. Vibration caused by the impact of people walking or running on the deck of a bridge can make the structure feel unsafe, even though this force will not cause any damage to a bridge that's sizable. Vibrations can be lessened by stiffening the handrails and support system or by using a deck material that absorbs some of the impact of foot traffic, such as epoxy or asphalt. However, a little bounciness—the "trampoline effect"—is desirable. Movement and sway are part of the pedestrian bridge experience. ■

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☐ "Crossing to the Other Side Safely" [page 149]

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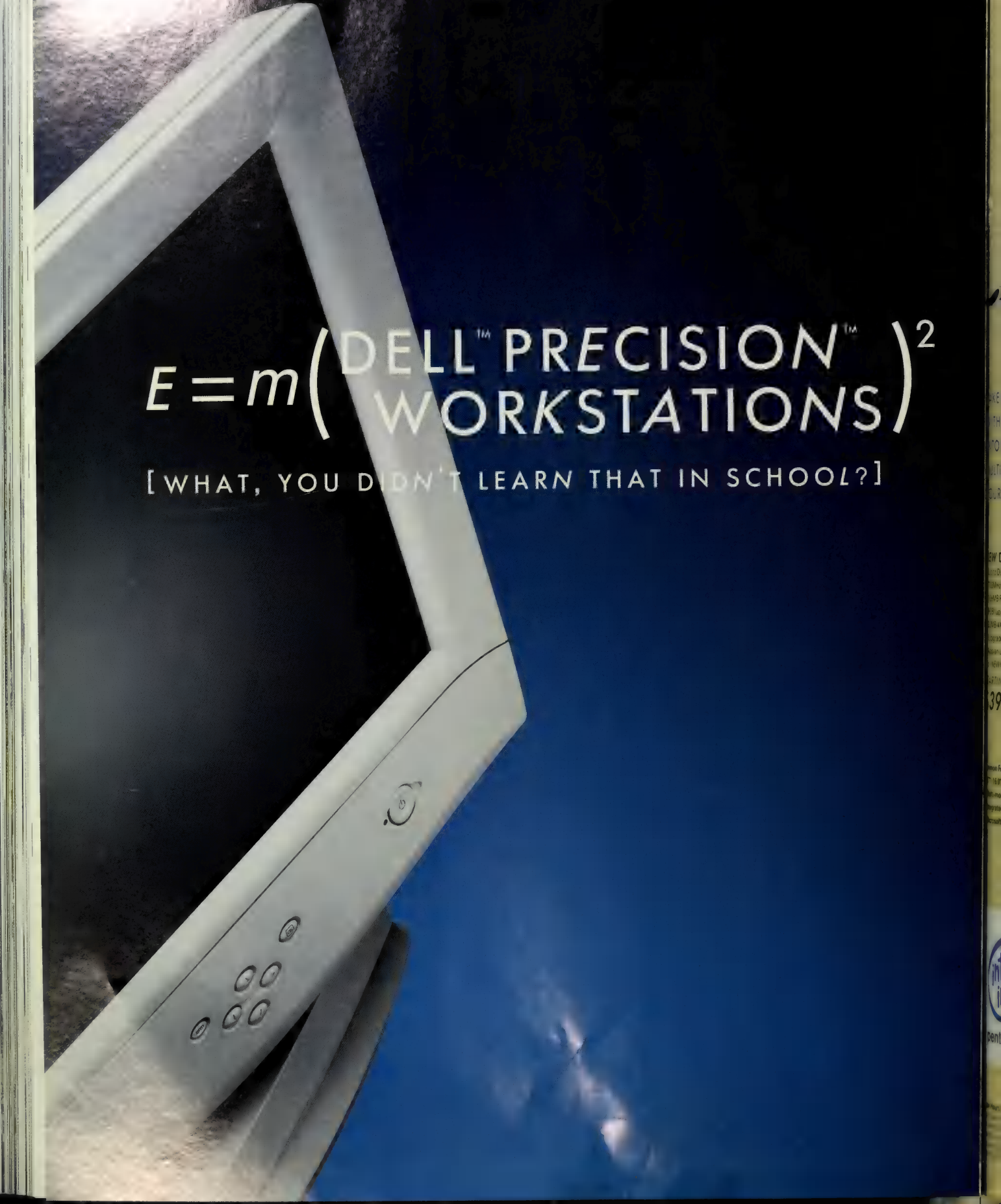
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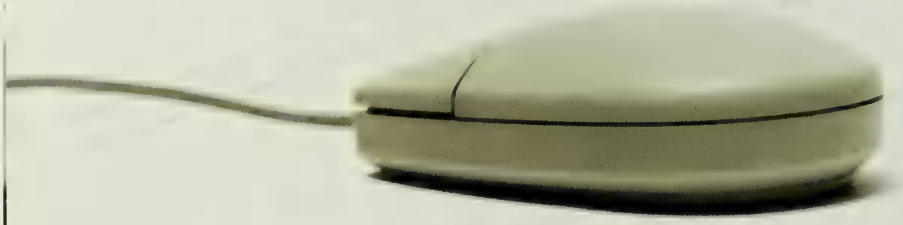
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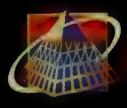
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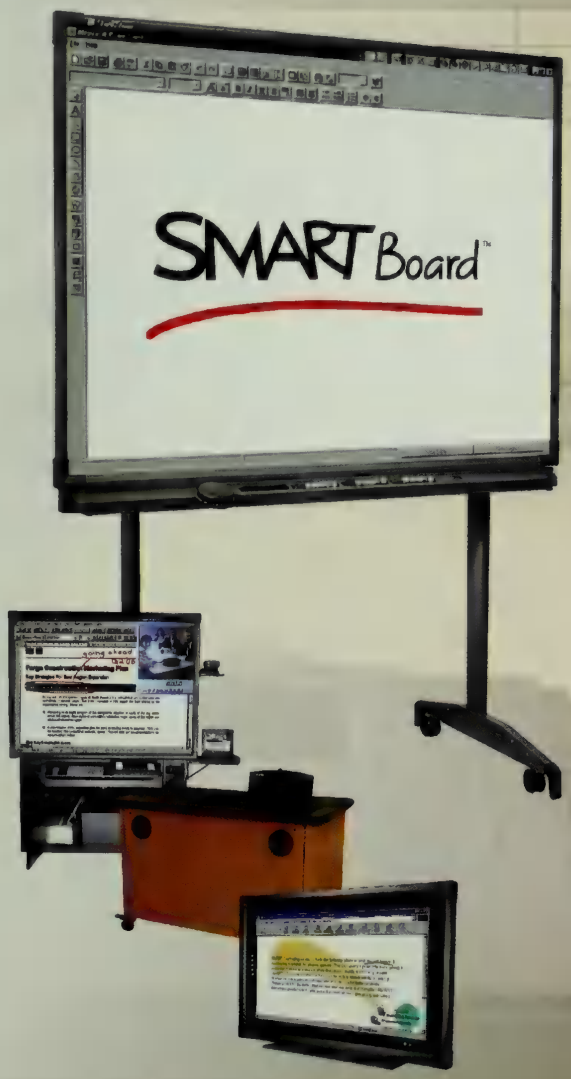
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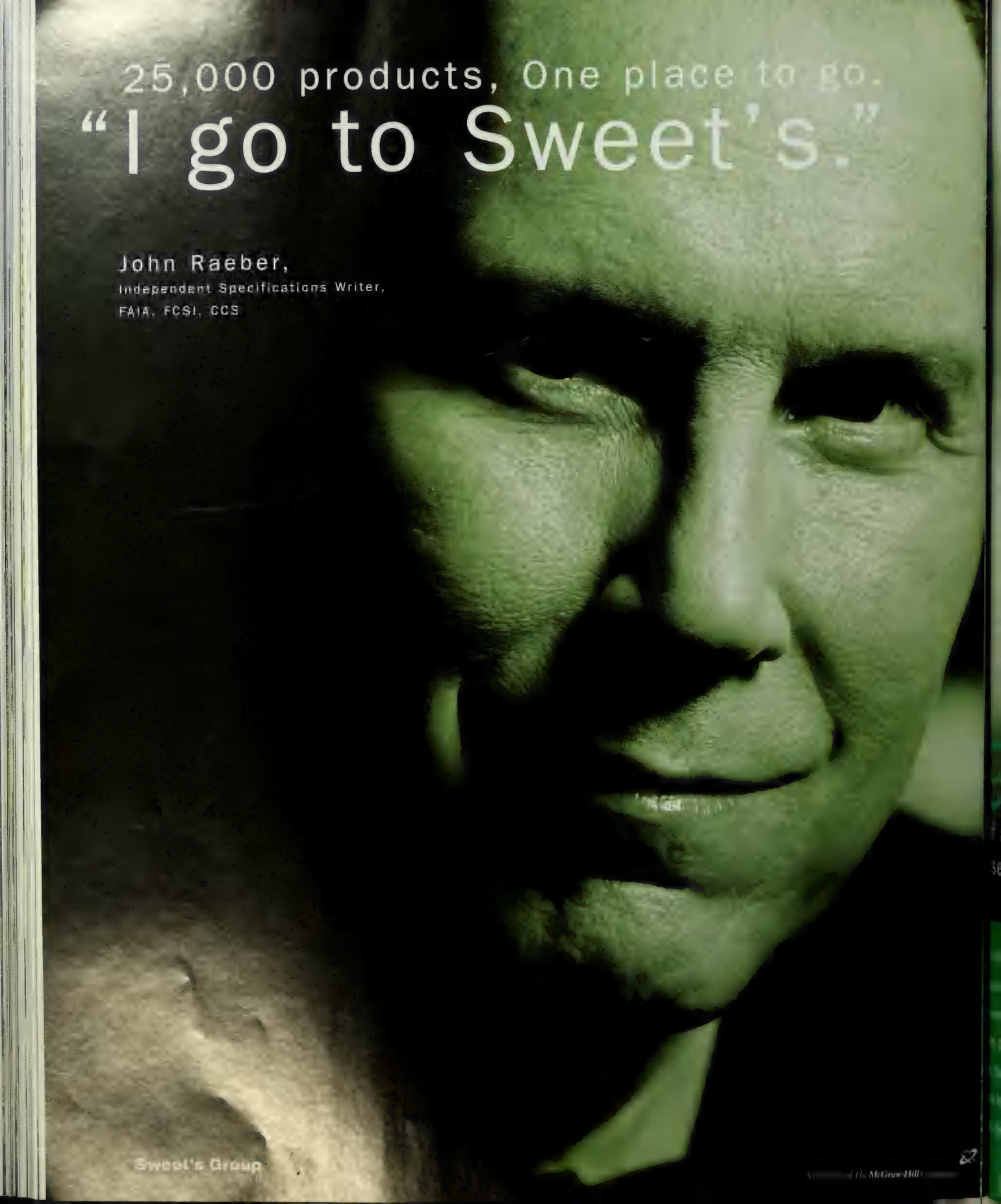
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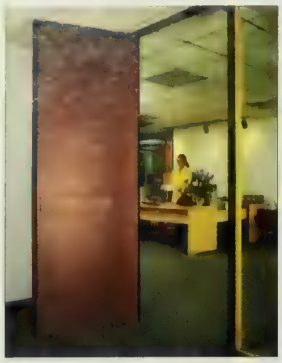
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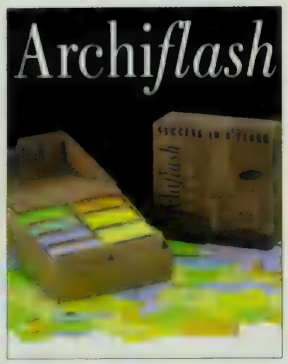


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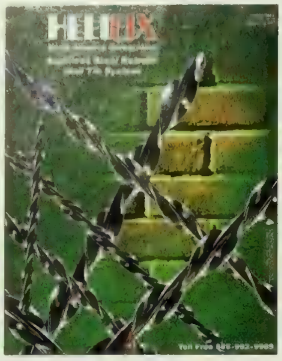


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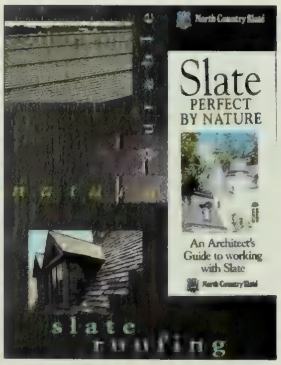


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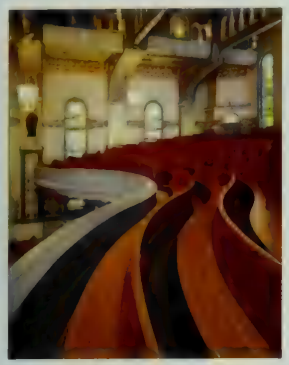
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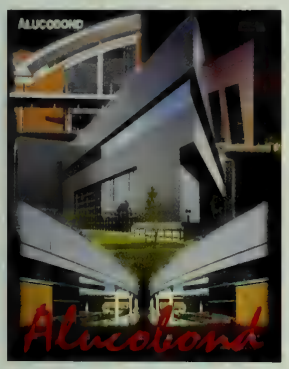


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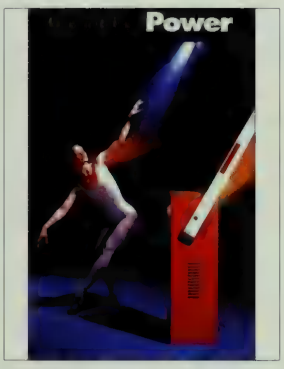


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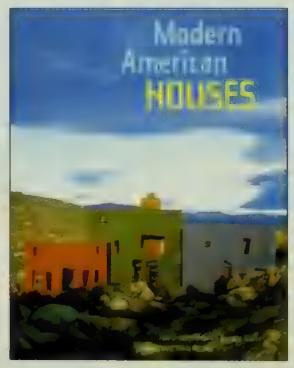


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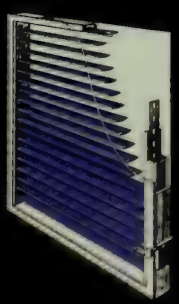
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Will Wright wants you to rule your own urban empire

Interviewed by Ingrid Whitehead

Game developer Will Wright puts another spin on the story of the Silicon Valley programmer who tinkers and turns bits and bytes into gold. With the launch of SimCity in 1989, Wright and business partner Jeff Braun turned a simulation "toy" into a game that lets users design, build, develop, and rule the city of their dreams. After seven incarnations of the original game, including a new one called "The Sims," and the merger of Wright and Braun's company Maxis with interactive software giant Electronic Arts, Wright comes out from behind the screen to tell RECORD what it's like to give ordinary people the power to be master of their own metropolis.

Q: *What are the principles behind your games?* The Sims, which just came out last month, is based on the theories of architect Christopher Alexander from his book *A Pattern Language* [Oxford University Press, 1977]. He's really the 'anti-architect'. His gig is to empower regular people to design their own homes and become their own client, which is what The Sims is all about. You choose the people who live in the house—their personalities, temperament, what they do for work, etc.—and you design the house around them and their daily lives. It's a very elaborate dollhouse for adults, in which the human element is the crucial scoring device. SimCity was based on similar principles, as well as those of MIT professor J. W. Forrester's book *Urban Dynamics* [Productivity Press, 1969].

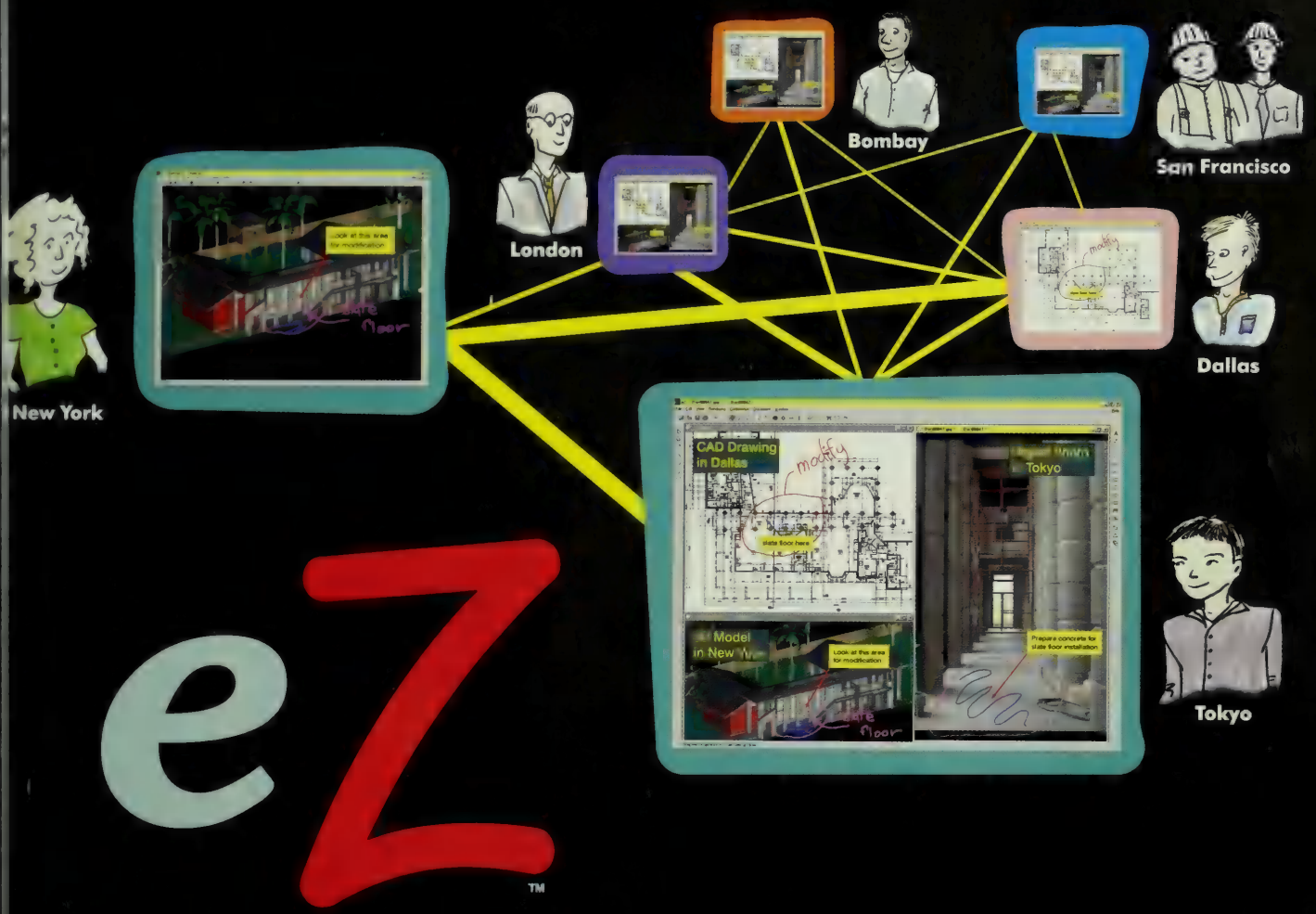
Before you and Jeff Braun started Maxis you tried and failed to sell the SimCity idea to software developers. Now it's one of the best selling games of all time. Why the initial reluctance? It was very difficult for software companies to understand why anyone would be interested in playing a computer game that doesn't let you win or lose. With SimCity, you have to make a value judgement—decide what your goals for the city are. What is your ideal city? In computational terms, the game is an open-ended system. It's set up as a set of interesting problems that the player has to solve. It's critical thinking in the guise of play, which is why high schools and elementary schools are very interested in it.

I noticed some articles on your Web site (www.maxis.com) written by mayors. Who else plays these games? We've heard from various people who play the game, including mayors, city planners, and architects. The big win is the kids. It teaches them to work with complex systems. But the process of learning how decisions relate directly to the actions of the human element, such as in The Sims, is appealing to almost anybody.

Can the game be used for more practical programs? When SimCity first came out we started an arm of Maxis called Maxis Business Simulations, which dealt with such things as facility design. The Environmental Protection Agency was one of our clients, as well as Chevron. We dissolved that department after three years, because for us the main point was to develop programs that put the fun back into architectural and building software.

Do you spend more time enjoying the real world now that your simulated empires are providing entertainment to such a wide audience? Not really. I do exactly what I did before SimCity took off. I sit in front of a computer and play games. ■

Photograph by Carter Dow Photography

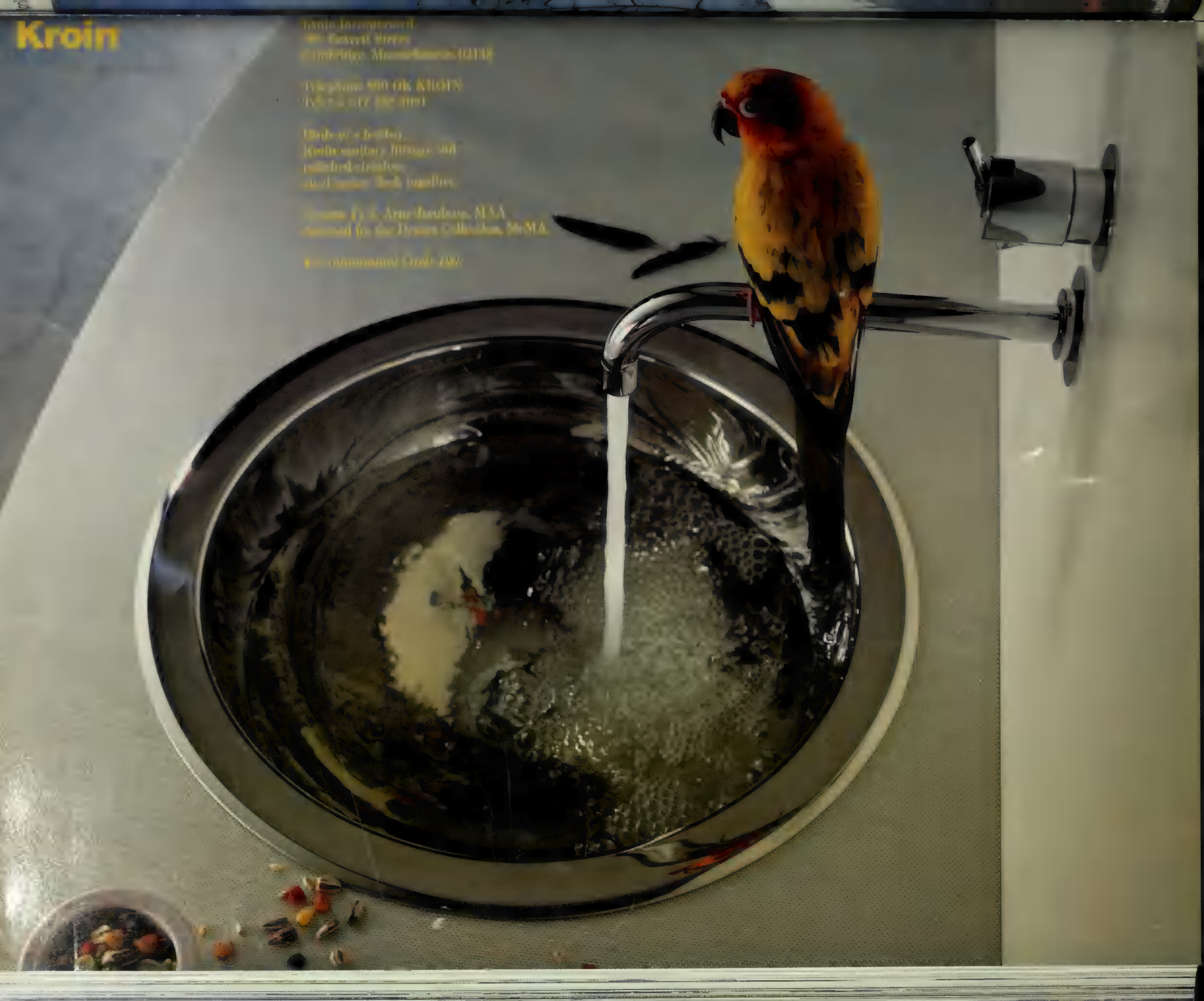


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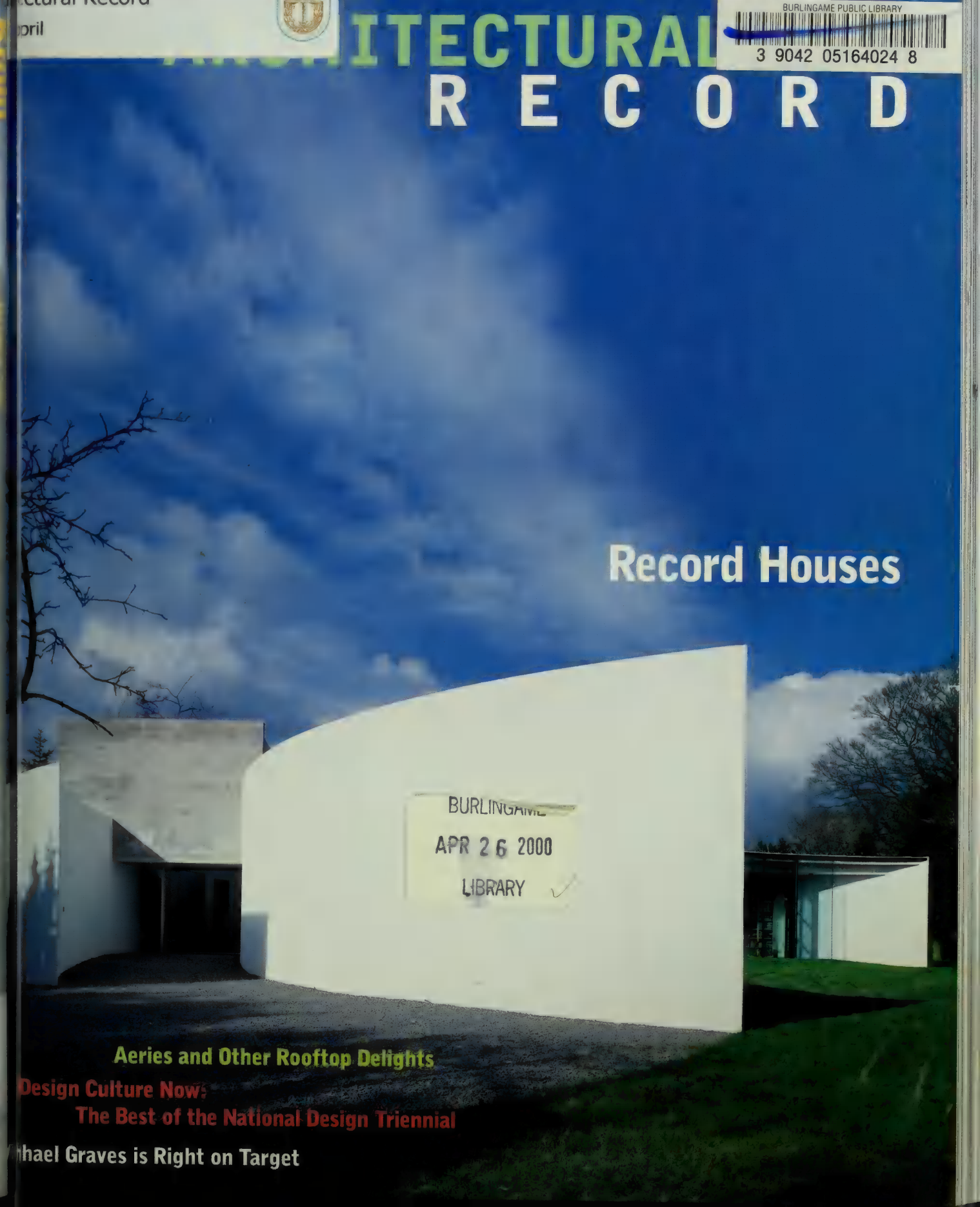
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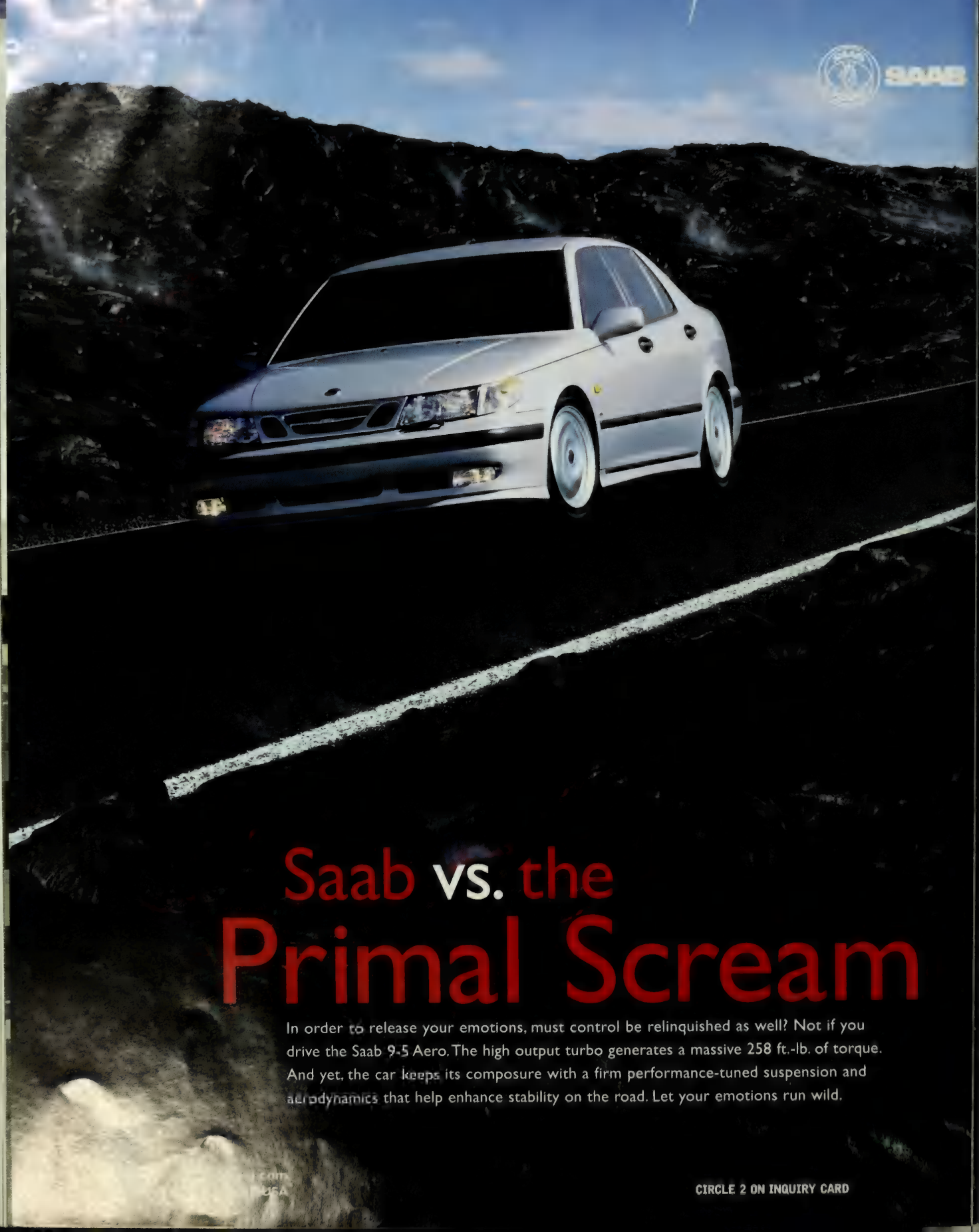
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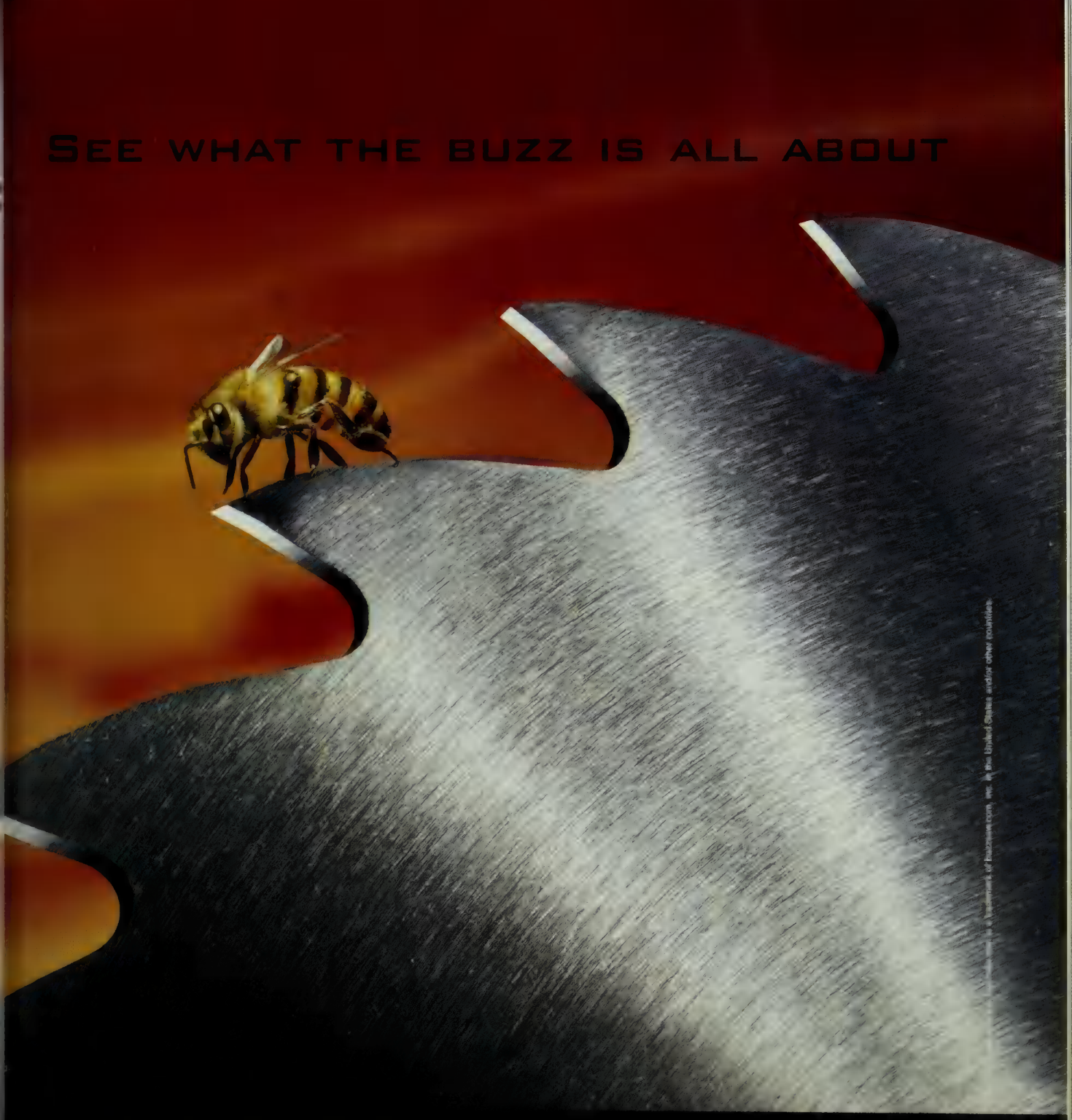
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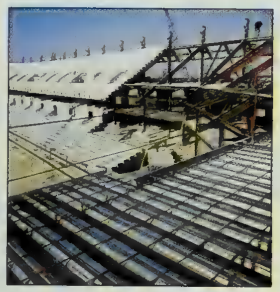


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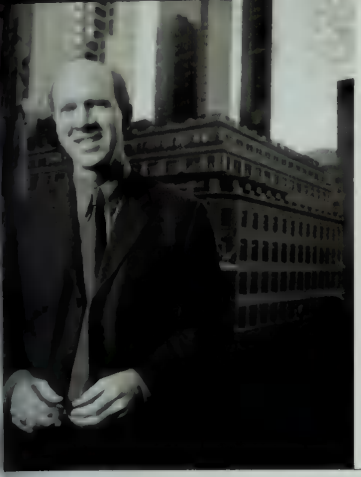
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CIRCLE 9 ON INQUIRY CARD



Dateline Manila: a city of extremes

Editorial

By Robert A. Ivy, FAIA

Standing high on the ramparts of the restored 16th-century historic district, above the slip where Spanish galleons had pulled in from Manila Bay laden for Acapulco, the contemporary megalopolis of 10 million people spreads with cloying lushness. Two eras merge on the horizon: neocolonial Manila, a densely packed warren of low-scale government offices, universities, and housing; and spiking the periphery, clustered high-rises—20 towers to the northwest, 30 further east. Off in the distance, above the smoggy air, the blue mountains rumble with thunder.

In the crenelations of the high stone walls, a young homeless man stirs from a nap with his dog, and stares across at something moving. Suddenly, across the boulevard, a figure runs across the grass. Then 20 runners, followed by a hundred, a combination of students and workers and protesters rushing a police barricade. The young man sighs and shrugs: demonstrations occur almost daily.

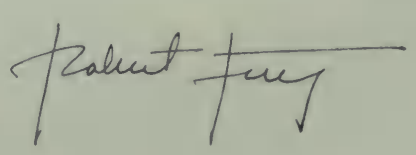
This vast archipelago still struggles with democracy in the aftermath of Marcos' iron fisted regime. Imelda's shoes are symptomatic of deep social and economic disparities in a country where approximately 10 percent of the population controls the wealth and 90 percent struggle to get by. Large-scale development resides in the hands of a few families that control the bulk of urban land; government, at best, seems ineffectual. The rift between the haves and have-nots affects all aspects of daily life, as armed guards sport guns casually draped across their shoulders. In Manila, this is the year of living dangerously.

Deprived of significant urban open spaces and seeking relief from the heat, crowds throng the streets, with their "sari-sari" stores, (small mom and pop convenience shops), and "wet" markets for fish and meats. Just steps away from Calvin Klein, ramshackle houses spill out along a river. Two- and three-story corrugated metal buildings in the barrios provide minimal shelter and little protection from stifling summer heat. Affordable housing and public transportation are a rarity where bureaucratic corruption taints the air like overripe fruit.

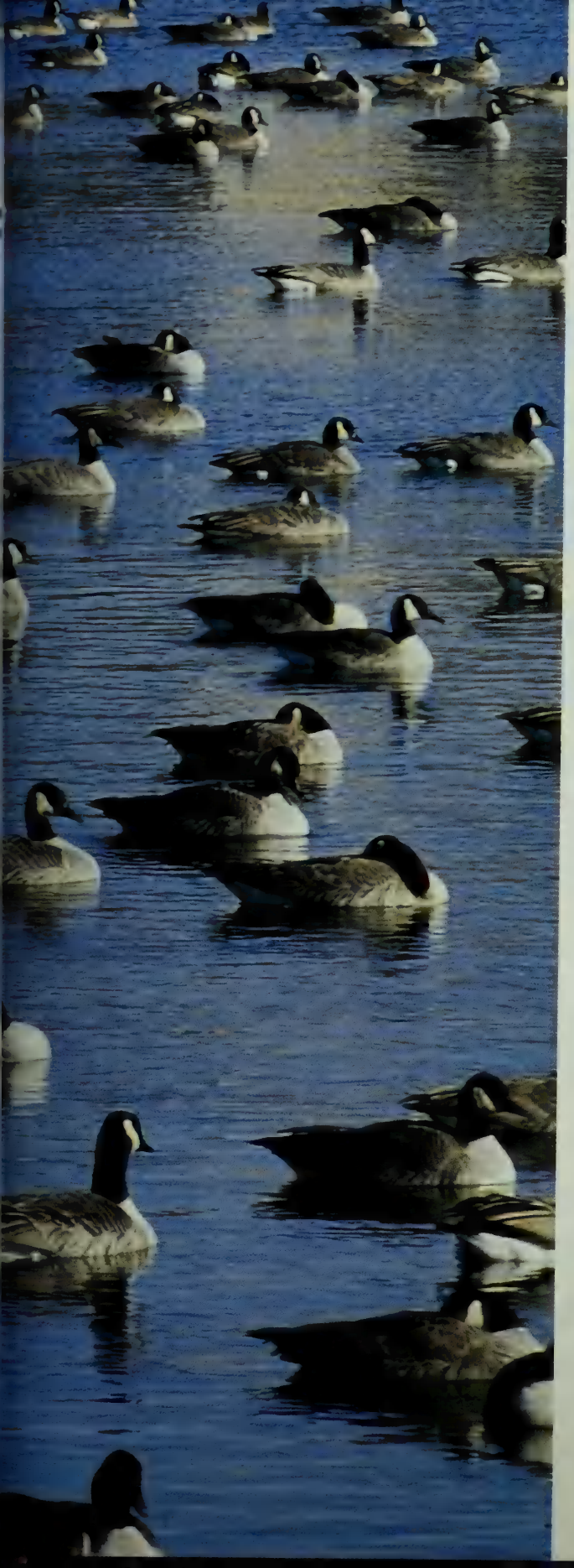
Yet segments of Manila have enjoyed boom years. International investment has been drawn to this friendly, English-speaking country with historic ties to the U.S. Despite the recent Asian economic doldrums, construction has resumed after years of stalling and some local architects are busy, though not necessarily on Philippine projects. Meanwhile, in the Philippine offices of the Smith Group, a 30-person team produces architectural and engineering drawings by day for their Washington, D.C., counterparts across the globe, a working example of 24-hour production and 21st-century communications. Manila works hard.

Cut to Makati, a new urban node five miles away, at the foot of the largest cluster of high-rises. Workers on break from the Asia Development Bank in pressed white shirts pour from the American designed contemporary structure into the streets, walking fast, screaming into cell phones, munching on fast food. Billboards by Citibank and Sony emblazon signature buildings by such architectural firms as HOK, SOM, and Arquitectonica that line streets indistinguishable from Dallas or Miami, even as Philippine architects call for the development of Philippine architecture. Traffic is gridlocked, as cars thread into intersections at will. Looking down on this maelstrom from the million dollar condominiums, Makati seems as shiny as Gucci.

The message from Makati and Manila is as overwhelming and diverse as the teeming city: This is 21st century Asia, where poverty coexists with wealth, where reality confounds expectations. If global development links us to the Pacific Rim in the coming century, then it behooves us to know our neighbors, even those 9,000 miles away. The Philippines' potential for economic growth and for confrontation is linked to our own by ties of history and commerce deeper than CNN. The global century has arrived.







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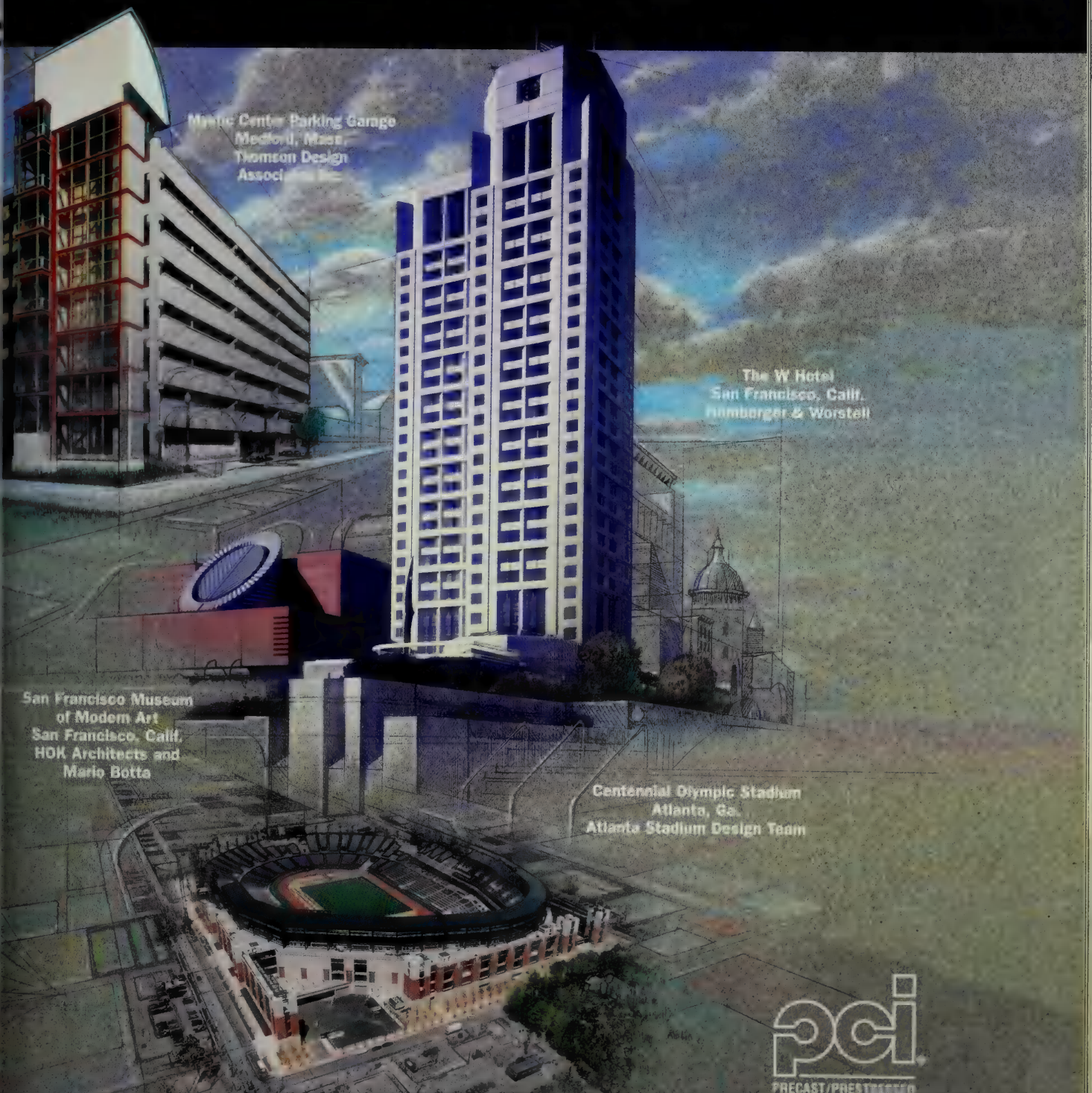
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CIRCLE 11 ON INQUIRY CARD

Letters

Bilbao effect

I agree with the idea [Building Types Study 781, January, page 113] that all societies need small museums offering intimacy and accessibility—even for the disabled. One could quarrel over whether the city of Bilbao would be better off in the long term with a less-extravagant museum structure. But those who know Bilbao will accept Frank Gehry's substitution for the relics of its industrial port—questioning perhaps only the museum's cost. The future will determine whether such a building can create cultural activities to benefit the townspeople in the Basque country.

—Adam Milczynski Kaas
Pamplona, Spain

Millennium shock

For the December RECORD article "Millennium Part Two: Futures to Come" [page 85] the magazine picked a group of "young, innovative" Americans to do what amounts to a fifth-year studio fantasy project. Maybe everyone involved had a little fun. But what this article really did was highlight the careers of a few academicians and keep them in the limelight (or propel them into it) with a national outlet for their work. The reality is that you assembled a group of architects you wish to promote—for whatever reason—who are in turn promoting themselves. Maybe with this push from you, paid in part by us, they will succeed.

—Richard E. Vincek, R.A.
Ridgewood, N.J

The [illegible]ration for much of the [illegible]ure of the Millennium" [illegible]nd for millions of years [illegible] garden slug.

Urban squall

Did anyone else find irony in the RECORD article on re-urbanization efforts in Silicon Valley? [February 2000, page 45] It seems that the region known for America's most advanced technology is also an icon for modern society's ills.

Silicon Valley is one of many U.S. regions that have suffered since World War II. Everyone works there, but no one lives there. The landscape is cluttered with freeways, strip malls, and housing development—all designed to cater to the automobile.

Now major renovation projects in San Jose attempt to restore its public realm to a level that residents can take pride in, with user-friendly public transportation, new public spaces, and buildings. While I strongly believe attempts to re-urbanize are a step in the right direction, I fear the changes will be sweeping and the consequences not fully considered. Poorly executed re-urbanization will be to the 21st century what suburban sprawl was to the 20th century. Instead, changes need to be staged with great care and foresight so the character of these projects develops naturally.

—Christopher J Armstrong AIA
Bristol, R.I.

War-torn town

Ted Phillips' photo essay "Kosovo: Walls but No Shelter" [January, page 74] evokes the grim politics of mass destruction that wipes out civilization and centuries of heritage. "Where do we go from here?" could have been an apt subtitle—though perhaps it's that burning question that is at the heart of every Serb and Albanian, before sanity is lost forever.

—M. A. Baig, Assoc. AIA
Karachi, Pakistan

Gloss on coatings

In the article "Understanding New Paint Products and Formulations" [November 1999, page 131], Charles Wardell states that factory-applied coatings are "costly" so "most architects specify standard, field-applied . . . finishes." However, Wardell does not emphasize a crucial point about cost. While a factory-applied finish such as a 70% fluorocarbon paint may be marginally more expensive, it should last more than 20 years. A field-applied coating will have to be reapplied several times during 20 years, making it a more expensive solution. Moreover, the environmental impact of several field applications can be several times that of a single factory application.

—Penn McClatchey
Southern Aluminum Finishing Co., Atlanta, Ga.

Happy people

Kira L. Gould's January article "Your Firm Is Your People. Are they Happy?" [page 66] was right on target! Thank you for the insightful thoughts; I agree with everything she wrote.

—C. Jack Corgan, FAIA
Dallas

Uncle Sam's club

The article on the General Services Administration's "design excellence" program [February, page 62] failed to mention two critical points. The GSA hires a pair of firms for each project—a design architect with a nationally recognized portfolio and a local architect to execute construction documents. The GSA program deliberately excludes local design architects in favor of higher profile "magazine architects," though the latter are rarely in touch with the realities and concerns of life in each locale. Because local architects participate only in the preparation of construction documents for someone else's design, there is a major fault line in the continuity of the process.

As a rule, the GSA permits the end-using agency only one representative on the A/E selection team. So the concerns and interests of the end-user are not fully represented in the design process. It's true that the user agencies are more than grateful to be getting new facilities. However, given the difficulties of creating good design for the government, I think that a few minor adjustments to policy and attitude would dramatically improve designs and save taxpayers money.

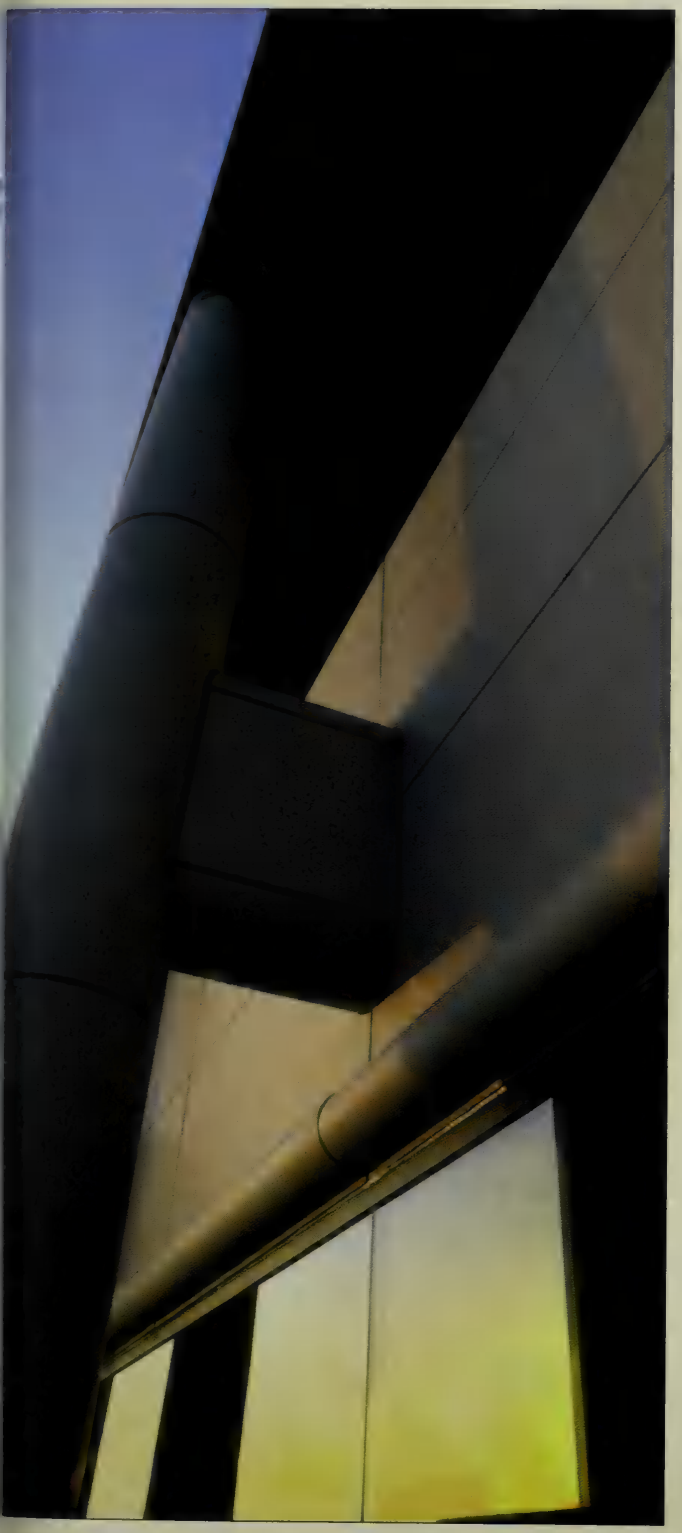
—Richard K. Perkins, AIA
Richmond, Va.

Foreign competition

Why do a competition [Practice Matters, February, page 49]? The answer is that competitions are the true mechanism in a capitalistic society where architects compete for clients. An open design competition is far more democratic than other forms of market competition.

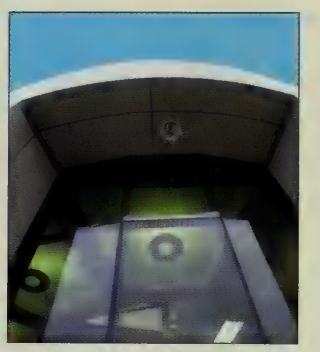
For the past decade I have practiced architecture and urban design in Germany, where 100 percent of public work and a large portion of private work are awarded through the competition process. Prizes are commensurate with the program demands and are sufficiently lucrative to attract a healthy amount of competition. The process is streamlined and simplified so participating is easy, reducing the risk.

Competitions produce the highest quality design. One merely needs to look to Berlin, which has been rebuilt in the past decade almost entirely by competition winners.



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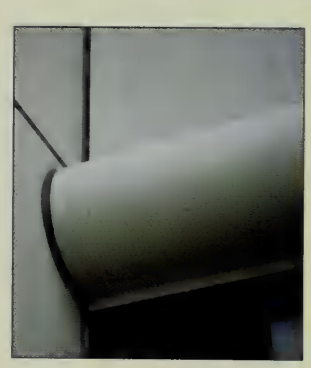




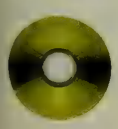
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Letters

Competitions equalize the playing field, enabling the most qualified design to rise above the rest. Please do not rob the small, talented, unknown firm the chance to compete.

Competitions generate design excellence. The overall quality of design in Germany is very high. Improve them, refine them, learn from other lands how to better them, but don't condemn competitions.

—Robert M. Karn
Weingarten, Germany

The fame game

The "star system" critiqued by Cynthia Davidson in the February issue [page 51] gave a wonderful bird's-eye view of all the glamour that the American architectural profession can muster. Certainly, there are few who deny the power and glory of its coveted media image. However, community-based architects should be skeptical of their high-flying brethren. When stars crash, bystanders may get severely burned. Only eventually will life in the provinces return to normal. (Next time we must check those references.)

—Michael S. Watson, AIA
Columbia, S.C.

Once we had a brightly shining star system—Mies, Corbu et al—that created the models upon which everyday Modern architecture flourished. But the author of your February article on the star system, like all writers on architecture, must realize that our luminaries design but a small percent of buildings created by architects in this country. The tragedy of the current star system is its irrelevance to daily design issues as they are addressed at the community level.

—James A. Gresham, FAIA
via E-mail

Cynthia Davidson's probe raises many unanswered questions. Doesn't the marketing of stars and celebrity firms intensify the shift (in the public regard) of architecture to being a purely visual, skin-deep cosmetic commodity? Doesn't the spur of fame drive stars and their imitators to strain for attention with outrageous designs, in an ever-faster cycling of fashions and clichés? It's a distortion of what good architecture really is.

The distinction has been blurred between fame that is earned honestly and media-manufactured fame. Even more disturbing is the question of whether access to architectural fame is now—or ever has been—a level playing field. Shadows of doubt cloud around the concept that big stars, big firms, and big projects can lead the way in the quest for good architecture.

—A. Richard Williams, FAIA
Tucson, Ariz.

Women's issue

I was fascinated and delighted by Robert Ivy's editorial [January, page 15]. He asks many relevant questions regarding women's status in the workplace and writes, "In an era focused on issues of equality, we need to assess where women stand in the year 2000."

I'll tell you where I stand as a 39-year-old woman with a Master's degree in architecture and 14 years experience working both in the Midwest and Southern California. After the recession of the early 90s, I became a project architect at one of the largest design firms in the nation. While I was there I tried hard to escape the politics and prayed to get pregnant so I could have a legitimate excuse to quit the firm.

For the past two years I have been a proud mother of my son. One thing that this society has done for women in architecture is make it easy for them to choose to become full-time moms. This year I am losing my AIA title, which has been my last superficial link to the world of architecture, because I lack the funds to pay my dues. What are other women in architecture doing? I'd like to know where we stand, because when my son is in school I'm going to get back out there and continue the fight.

—Fariba Khalvati-Beighlie
via E-mail

Corrections

The November 1999 article on Sinte Gleska [page 85] did not list MB&A Consulting Mechanical engineers. In our News Brief on the National Underground Railroad Freedom Center, in Cincinnati [January, page 44], the credit for the architect should have read: Blackburn Architects, Inc., with BOORA Architects Inc. Credit for the Chibougamau Mining Interpretation Center, in Quebec, Canada [January, page 130], credit should have been listed as: Julien Architectes and Les architectes Plante et Julien. In our October 1999 coverage of the Business Week/Architectural Record Awards, we inadvertently left off a photo credit for Thaddeus Govan [page 98].

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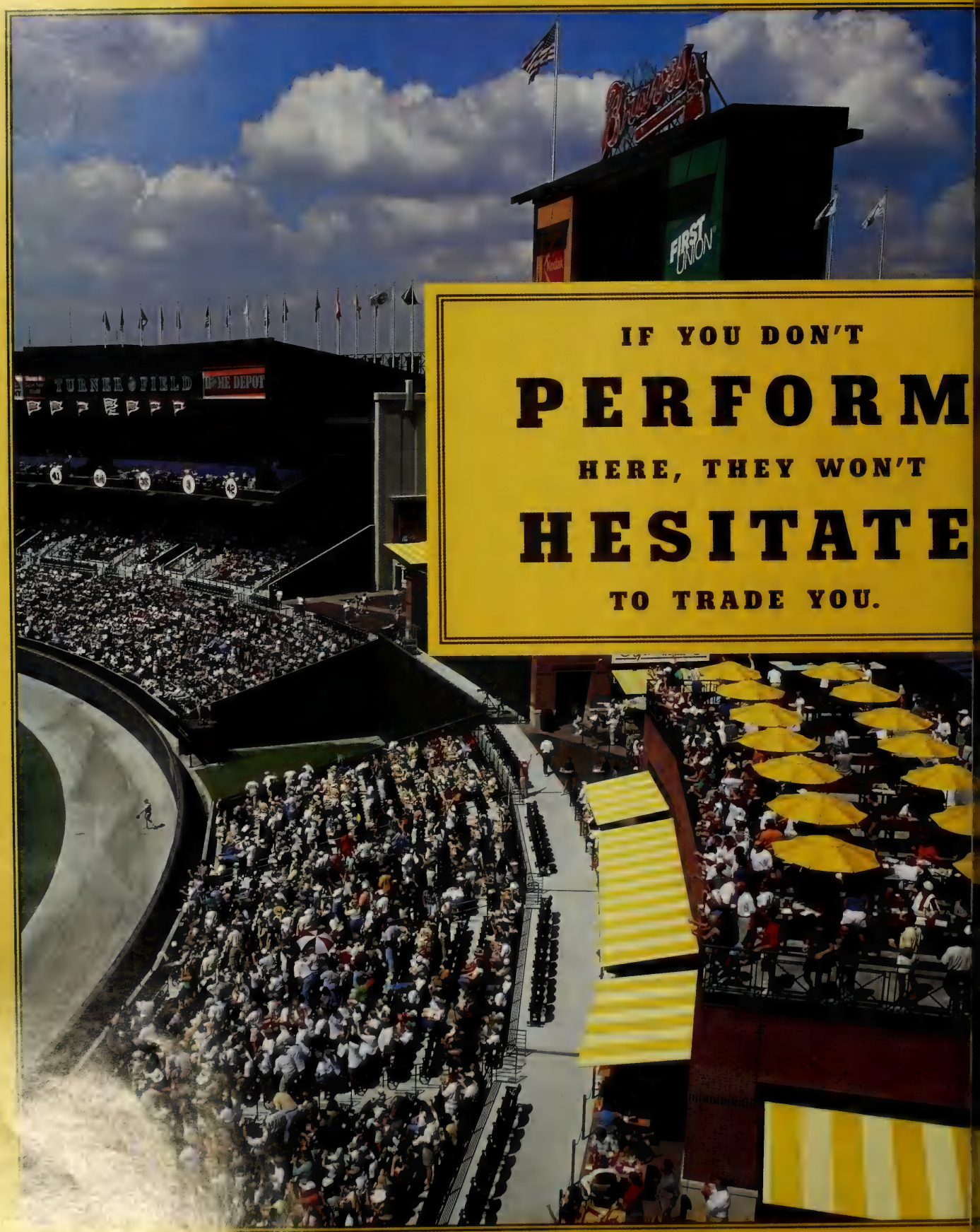
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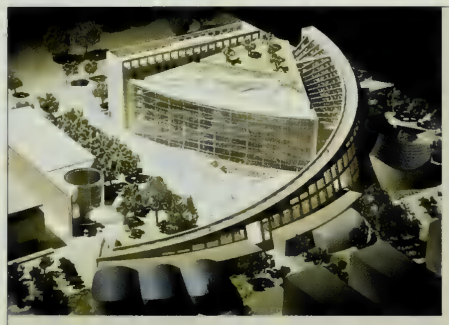
Bulletin Expansion for oldest public building p.32
Turf battle for two D.C. museums p.34
Wooing Washington with a new chancery p.36
Pittsburgh decides fate of historic area p.38

GWATHMEY SIEGEL TO DESIGN THE LATEST NEW YORK PUBLIC LIBRARY PROJECTS

The New York Public Library (NYPL) has chosen Gwathmey Siegel & Associates to design one of the most high-profile of its recent spate of enhancement projects: an updating of its Mid-Manhattan branch. At this writing, library officials declined to comment on the design, saying it is too early in the decision-making process, but plans reportedly include an expansion and renovation—not a replacement structure—of the current facility, which occupies a Fifth Avenue site facing the Beaux Arts main library. The budget is reportedly between $40 million and $50 million. Gwathmey Siegel recently oversaw the transformation of the old B. Altman department store on 34th Street into the NYPL's Science, Industry and Business division.

Meanwhile, the NYPL is nearing completion of a renovation of the Library for the Performing Arts at Lincoln Center. The two-year, $30 million project, designed by Polshek Partnership Architects, includes an orientation center near the Lincoln Center Plaza entrance, redesigned public reading rooms, and new and improved exhibition galleries.

The NYPL was highly praised last year for David Brody Bond's $15 million restoration of the reading room in the main library, which dates from 1911. *Soren Larson*



SALT LAKE CITY BOOKS ITS OWN LIBRARY UPGRADE

Salt Lake City has unveiled the future look of the new main branch for its public library, designed by Boston-based Moshe Safdie and Associates and Salt Lake City's Valentiner Crane Brunjes Onyon Architects.

Construction is scheduled to begin this fall. The facility, located in the heart of the downtown area, will feature a triangular main structure, an adjacent rectangular administration building, a glass-enclosed "urban room," where full-height windows will provide visitors with dramatic views, and a 50,000-square-foot plaza intended for public gathering and interaction. A curving wall element, containing shops and food outlets, will weave the site together and will be mountable via steps that lead to a roof garden. The $78 million project will enable the library to double its space for a collection and is being counted on to enliven the city's civic core. ***S.L.***

ANOTHER ICON FOR SAN FRANCISCO'S YERBA BUENA: LIBESKIND'S PLAN FOR THE JEWISH MUSEUM

The design of a new building for the Jewish Museum San Francisco (JMSF) has finally been unveiled. The 100,000-square-foot project will occupy a critical edge of the city's Yerba Buena cultural arts district, which already boasts buildings by acclaimed architects: Botta, Maki, Polshek, and Legorreta. With the JMSF, Daniel Libeskind will make his mark on the area, in a joint venture with the San Francisco firm Gordon H. Chong & Partners.



The $60 million project involves the reuse of and an addition to a turn-of-the-century brick power substation. "Starting with an existing historic building gives us a chance to extend the memory of the project over two centuries," says Libeskind. "For the first time, this building, which literally powered the success of the city, will be opened to the public." The old will be offset by the new with a group of tilted, complex volumes rising out of the substation. The shiny, metal-clad form is derived from the Hebrew word chai, meaning "life," and calls to mind Libeskind's Jewish Museum in Berlin.

The 15-year-old Jewish Museum San Francisco (currently housed on Steuart Street) has a mission to "examine the rich contemporary relevance and meaning of Jewish tradition and culture," according to museum director Connie Wolf. With this goal, the museum will have over 8,000 square feet of educational facilities, in addition to 20,000 square feet of galleries for both temporary and core exhibitions. Half of the ground floor (including much of the old power station) will hold a generous lobby with a large cafe and museum shop. The new portion will also extend into the Four Seasons hotel, now in construction on the site behind it.

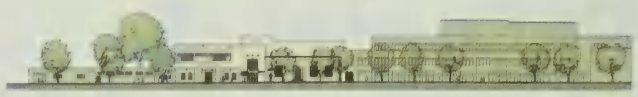
Libeskind's is actually the second design for the project. The first, by Peter Eisenman, FAIA, met with opposition because of its alteration of the site's plaza. Eisenman and the JMSF terminated their relationship shortly after the 1997 unveiling. Now, Libeskind's scheme must gain the approval of the San Francisco Redevelopment Agency, after which construction is expected to begin late this year. *Lisa Findley*

OLDEST PUBLIC BUILDING TO GET A NEW PARTNER

It's a balancing act to design a modern museum beside a squat, nearly 400-year-old adobe structure—especially one at the heart of Santa Fe, N.M.

The 18,655-square-foot Palace of the Governors is known as the nation's oldest public building. It was the seat of New Mexico's government from the early 17th century until the early 20th, when it became a state museum. Now the Museum of New Mexico plans to build an expansion on the site, though it still faces a few political hurdles in raising the necessary $30 million. The new building behind the palace will house the museum's historical collections. (The state legislature has yet to decide how much funding it will provide.)

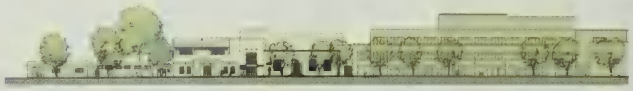
Roy Woods of Santa Fe's Conron & Woods Architects envisions a five-level, 115,000-square-foot structure that would meet modern needs without overpowering the palace, a building he calls "the crown jewel of the collections of the history museum." Tentatively named the Palace Annex, or State History Museum, the new building will be wedged into a 28,745-square-foot footprint in the middle of a city block (at right, three different views; the addition is in yellow). The site is surrounded on two sides by museum properties, including the Palace and the state's history library and photographic archives.



Washington Avenue



Palace Avenue



Lincoln Avenue

Keeping in context

Woods' design places two levels underground, submerged 20 feet below grade, with the top three levels stepped back. Like almost everything else in the historic district, the annex will have a brown stucco finish, resembling mud plaster. But Woods declined to categorize it as Pueblo Revival, Santa Fe's dominant style—and a style that is defined by local design ordinances.

"That gets into trying to copy something," he said. "I mean, you have the real thing right next to it in the Palace of the Governors. Anything we would build that attempted to imitate it would just cheapen that."

Peter M. Saylor of Philadelphia's Dagit-Saylor, which is consulting on the design, said the annex will have a special events atrium, a shop, offices, new exhibition spaces, and areas where parts of the collection in storage are visible to visitors. (His firm designed such storage areas at the Logan Anthropology Museum in Beloit, Wis., and Land's Valley Museum in Lancaster, Pa.) Ninety percent of the museum's history collections are now in the non-climate-controlled basements of two buildings dating from 1912, which will be demolished. The new visible storage will allow passersby to view artifacts through glass windows into climate- and security-controlled areas where curators and researchers will work. If visitors want more information on what they see, they can get it from computer terminals along the windows. *Thomas Sharpe*

YOUTHFUL LONDON DUO BUILDS AN UNUSUAL ART GALLERY IN AN OUT-OF-THE WAY LOCATION

The New Art Gallery in Walsall has an importance quite out of proportion to its size or its location—a provincial town in the English West Midlands. When the art museum (rear in photo) opened on February 17, it marked another step in the emergence of an alternative, pared-down aesthetic in British architecture that some are referring to as the New Austerity.



Won in a competition by young London-based architects Adam Caruso and Peter St. John (whose work ranges from private houses to public projects), the $37 million New Art Gallery is placed on high ground, its tall square offset tower marking one end of this industrial town. The building stands in a new square, that was laid out in broad zebra stripes of asphalt by the artist Richard Wentworth.

Rising from this, the museum appears as a calm, otherworldly structure clad in huge pale terra-cotta tiles (diminishing in size from base to summit) above a plinth of stainless-steel planks. The whole boxy assemblage is punched through with an apparently random selection of differently sized windows.

The entrance sits beneath a cantilevered corner of the building, leading into an enormous foyer with a polished black floor and a broad flight of black stairs. The walls are by turns board-marked concrete and timber. The stair balustrades are covered in fine tan leather. A multitude of slender, narrowly spaced smooth concrete beams forms the ceiling high above.

Why Walsall?

The gallery opened here because the town possesses the Garman Ryan collection, a personal collection of fine and ethnic art donated by the late Kathleen Garman—sometime art dealer and locally born widow of the sculptor Jacob Epstein—and a friend, the American sculptor Sally Ryan. In addition to the collection are new temporary exhibition galleries and large education and studio spaces. The Walsall has just been named a regional partner of Britain's most important museum of Modern Art: the Tate Gallery in London.

At the heart of the building are the timber-lined galleries where the Garman Ryan Collection is permanently housed. This part, conceived as a series of domestically scaled rooms surrounding a large hall, attempts to house the artworks in an appropriately scaled setting. The museum is, in effect, a vertically-stacked sequence of spaces to be enjoyed in promenade. As Peter St. John puts it: "It was always seen as more of a public building than a machine for viewing art." *Hugh Pearman*

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TURF BATTLE BREWS FOR TWO D.C. MUSEUMS

The National Portrait Gallery in Washington, D.C., has closed for a face lift, while its sister tenant at the old Patent Office Building, the National Museum of American Art, is also receiving a sprucing up. Both museums, part of the Smithsonian Institution, have closed for top-to bottom rejuvenation.

The politics of the project, though, grabbed most of the headlines about the work. On the day before he retired last year, Smithsonian Institution Secretary Michael Heyman recommended the Portrait Gallery be relocated to the first floor of the building—effectively the basement. Not only is the space less desirable than the upper floors, but the low ceilings would render it unacceptable to display some of the Portrait Gallery's larger works. The third floor Civil War Gallery, the Great Hall, and the Lincoln Gallery, site of Abraham Lincoln's second inaugural ball, will all be turned over to the Museum of American Art.

Critics of the proposal noted that Heyman's wife, a friend of Museum of American Art director Betsy Broun, may have had a hand in the directive. Portrait Gallery Director Alan Fern, who has resigned since the brouhaha began, maintains there should have been a more equitable distribution of the grander spaces. He has appealed to the Smithsonian for a reconsideration of Heyman's mandate.

Hartman-Cox, the Washington firm hired by the Smithsonian for the project, has been asked not to comment on the political maneuvering—or the difficulty of designing a space before a user has been identified. The 35-year-old firm, though, has extensive experience in preservation. The firm renovated the Folger Shakespeare Library and has a long-standing contract to maintain the Jefferson and Lincoln Memorials.

A final decision awaits for the interior of the Patent Office Building, but it is hoped the impressive Greek Revival building will become the resculpted Grande Dame of Washington's booming downtown district. *Ellen Sands*



DESIGN FOR A VERMONT WELCOME CENTER GROWS OUT OF A RICH AGRICULTURAL HISTORY

The traditional barn may be vanishing from the American landscape, but Timothy D. Smith & Associates is ensuring that some semblance of the form will be visible for years to come for visitors to Vermont.

The firm, based in North Bennington, Vt., employed agricultural forms and techniques in the scheme for the Southeast Vermont Welcome Center in Guilford. The center, which opened last November, has a barnlike main building that holds exhibits and information for travellers and other structures reminiscent of local farms. The main building's frame "is authentic hand-hewn timber," says Smith, adding that he specified a traditional slate roof, fashioned display racks from galvanized pipe, and designed the tiled bathrooms to be reminiscent of milking rooms, while adding modern touches, such as the skylights that line one side of the roof. The complex also has an orchard, a picnic shed, an "information crib" based on historic corn cribs, and a form reminiscent of a silo on the open-air public plaza.

The client, which is the state of Vermont, likes the theme: Smith has been hired to work on the programming for a similar center in Bennington. And the architect notes that the slate, wood, and other materials will grow more attractive with age. "The funny thing is," he says, "these buildings will look a lot better in 20 years." *Soren Larson*



MOHEGAN SUN THROWS THE DICE ON HUGE NEW GAMBLING LURE

Casinos are more known for kitsch and glitz than contemporary design, but Mohegan Sun, the gaming complex in Uncasville, Conn., owned by the Mohegan Tribal Nation, is taking a different tack with its latest venture. The $800 million expansion project, said to be the largest private development under way on the East Coast, will include an angular, 1,200-room glass luxury hotel tower with porte-cochere, meeting and convention facilities, a 10,000-seat arena, spas and fitness centers, and, of course, abundant new gambling operations, including the 115,000-square foot Casino of the Sky.

The 34-story hotel (left), designed by Kohn Pedersen Fox, literally mirrors the tribe's reverence for nature, according to James von Klemperer, AIA, a principal at KPF. "The landscape is a large part of the experience," he says, and the tower's glass "will reflect the colors of nature, rather than being a scar on the landscape." Crystals have a special place in Mohegan lore, the architect adds, so "we tried to make this tower itself into a crystal." Hirsch Bedner designed the hotel interiors while the Rockwell Group did the casino and public spaces, including the Casino of the Sky, a counterpart to the existing Casino of the Earth. The facilities will sit underneath the world's largest planetarium dome and center on Wombi Rock, an alabaster and onyx structure resembling a massive rock outcropping. It will pulsate with light to complement the planetarium show, and visitors will be able to climb up for expansive views of their fellow gamblers. *S.L.*



CIRCLE 18 ON INQUIRY CARD

WOOING WASHINGTON WITH A NEW CHANCERY

A colossal pink palazzo on Washington's Embassy Row is sure to attract plenty of attention when it opens in June—indeed, the new Italian chancery (embassy office) is already turning heads along Massachusetts Avenue.



Italian identity

Having outgrown its existing facilities, the chancery needed to move. By purchasing a prominent site at the entrance to Rock Creek Park and selecting Roman architect Piero Sartogo, who believes that "architecture is a transmitter of images," the Italian Foreign Ministry decided to adopt a high-profile presence in Washington and make a strong statement of Italian identity.

Piero Sartogo Architetti, in association with Leo A Daly of Washington, D.C., designed the eye-catching homage to Italian classical architecture—seen through the lens of a futurist. With windows faceted at angles, steps that narrow as they recede, and a soaring roof that sits slightly askew atop the boxy four-story building, the chancery might have been painted by De Chirico, who delighted in using perspective to heighten and manipulate perception. Even the box is not a box, but a square (171.5 feet on a side) bisected on the diagonal (like the original plan of Washington, the architect says) by a glass-topped atrium.

A display of designs

The interior walls are yellow and violet, and a glass exterior wall frames a view of the wooded park beyond. Italian art will be on display, as will classic contemporary Italian furniture selected by the architect and installed in the atrium and on glass bridges above it. And, of course, authenticity mandates marble—42,000 blocks of hand-cut stone, quarried near the Italian town of Asiago.

Construction started in 1996. When complete, the structure will have a total usable area of 145,700 square feet. The consular section will have its own entrance, as will the ambassador. Visitors will pass through a security check and then enter directly into the atrium for meetings and public receptions. Smoking will be permitted throughout the building. After all, as they say, "That's (also) Italian!" *Jane C. Loeffler*

LAWSUIT TROUBLES VANCOUVER SKYSCRAPER PROJECT

One Wall Center is creating one big controversy. The black glass residential tower, now emerging on Vancouver's skyline, may forever change the trust between architects and Vancouver's planning department, according to many involved in the project. The city has filed a lawsuit against architect Peter Busby and Calmont Investments, the company owned by flamboyant developer Peter Wall. The city is arguing that both the architect and developer have not complied with the conditions that were placed on the tower's design prior to approval: a transparent building that incorporates clear glass as a prominent design feature.

After public hearings and a study commissioned by the city, the 48-story hotel/condominium tower was approved, based largely on its elliptical, transparent features (RECORD, May 1999). However, Busby has claimed that after the rezoning was granted, Wall changed his mind and decided on a more "obscure" glass color. For his part, Wall has stated that his choice of glass was indeed the glass approved by [illegible] he has always complied with the directions. The confu[illegible]ng the chosen glass led to the lawsuit.

[illegible]ck, a partner with local firm Hancock Bruckner Eng [illegible] the urban design panel that approved Busby's [illegible]otes that regardless of the outcome, the relation[illegible]cts and the city will be altered. "The system will [illegible]mount of trust between architects and the city [illegible]re will be fewer verbal agreements," he says. [illegible]ng and record keeping and this will cost [illegible]oney." *John Gracey*

VINOLY GOES BACK TO NATURE WITH A DESIGN FOR COLUMBIA'S CLIMATE RESEARCH BUILDING

Columbia University has a distinctly urban image, but the school's new Monell Building, which opened in January, features an entirely different aesthetic. Designed by Rafael Viñoly Architects of New York City, the $12 million, 27,000-square-foot structure, which will be a venue for international climate research, is perched along the cliffs 500 feet above the Hudson River in Palisades, N.Y., on Columbia's Lamont-Doherty Earth Observatory campus.

Viñoly wanted the building to mimic the contours of the cliffside, so he designed a sloping, 562-foot-long, one-story structure with airy, sunlight-filled classrooms, offices, laboratories, and conference space. The structure is divided into two wings, which meet at a central point to form a central lobby. To ensure ample daylight, the architects placed a clerestory window along the entire length of the building. The facade was made of cedar and stone to blend with the surroundings. Soren *Larson*



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CIRCLE 19 ON INQUIRY CARD

PITTSBURGH TO DECIDE FATE OF HISTORIC AREA

With the mayor's blessing, a developer has proposed a major revamping strategy for downtown Pittsburgh—although the plan has been stirring heated debate.

In 1997, Mayor Tom Murphy selected Chicago developer Urban Retail Properties to build a retail and entertainment complex in the city's traditional shopping corridors of Fifth and Forbes Avenues. Street-Works Architects of Alexandria, Virginia, along with the Pittsburgh office of Perkins-Eastman Architects and local firms still to be selected, were to design the complex (top right: one possibility). The developers promise high-end national retail chains and cinemas that create "a distinctive urban center that is safe, economically vital and attractive to residents and visitors alike."





The $480 million proposal, which requires $58 million in public funds, would apparently displace 125 merchants and demolish 62 buildings while preserving 12 facades. The plan's supporters say the area in question is dilapidated, underutilized, and in need of drastic redevelopment to recapture its prewar status as a regional shopping destination.

Several factions hold dissenting views. The Pittsburgh History & Landmarks Foundation, accepting the premise of major redevelopment, hired architect Stanton Eckstut of Ehrenkrantz Eckstut and Kuhn Architects in New York to produce a more preservation-oriented plan.

Eckstut calls the redevelopment area "one of the most unique clusters of historic buildings built for commercial purposes anywhere." His alternative idea (bottom rendering) saves 36 structures and eight facades over a slightly different footprint than the URP offering. It also incorporates more housing units and urban reconnections, such as the reopening of some underused pedestrian arcades.

Other groups reject redevelopment entirely. Working for the Golden Triangle Community Development Corporation, local architect Terry Necciai has begun a redevelopment program under guidelines from the National Trust for Historic Preservation. Necciai claims Fifth and Forbes is an irreplaceable asset, best served by incremental renovation and community action, especially in light of recent department store, stadium, and theater construction nearby.

To the surprise of local preservationists, Pittsburgh's Historic Review Commission disagrees. The commission approved the Mayor's plan, which requires partial dismantling of the local Market Square Historic District—marking the first time the body has approved demolition of one of its own historic districts.

Meanwhile, a local merchant's group has retained attorneys from the Institute for Justice in Washington to sue the city—but some experts predict a quick decision in the state Supreme Court and a resultant green light for Urban Retail Properties. And though the city council must complete its hearings process, a five-member majority is poised to vote with the mayor.
Charles Rosenblum

NEW PROGRAM AIMS TO PRESERVE CLASSICAL BUILDING CRAFTS

When craftsmanship was a legacy, knowledge was handed down from parent to child or master to apprentice. Today, the old traditions are often lost to a world of mass production. A new institute founded by architects Andres Duany, Ray Gindroz, and Leon Krier, among others, aims at reviving the art of building craft.

The Institute for Traditional Architecture (ITA) was formally launched in February during a weekend conference held in Windsor, Florida—a town designed by the firm of Duany and Plater-Zyberk. The town itself is a showplace of traditional architecture, most of it in an Anglo-Caribbean mode, and its most recent addition is a meeting hall designed by Krier.

[illegible]rector of the ITA is Richard John, former director of the [illegible]stitute of Architecture. John brought that institute to [illegible]es in 1996 and 1997 as the Prince of Wales Summer [illegible]re and the Building Arts. He is now on the faculty [illegible]Miami.

[illegible]'s summer school was the most immediate inspiration for the ITA, it is also patterned in part on a formal apprenticeship system and on the old Beaux Arts system. "It is a very old-fashioned model," says John.

Students will take classes in observational drawing and life and nature drawing, among many others. They will also study building materials, crafts, and techniques, as well as the essentials of building design and composition. "All culture is about reproduction," says Krier, "but the question is whether ideas can withstand reproduction without becoming sterile."

The ITA's objective is to provide a one-year educational program open not just to architects but to those in ancillary professions as well—interior designers, landscape architects, builders, and craftsmen. The ITA's students will attend two intensive seminars at the beginning and end of the program but will work for most of the year with a tutor. Each student will complete a series of design problems in order to be certified.

The first ITA class will be launched in May with a 10-day course at the University of Miami, "The Art and Craft of Traditional Architecture."
Beth Dunlop

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FAST-CHANGING WARSAW OPENS SUPREME COURT



After three years of construction and a cost of $80 million, the Supreme Court on Krasinskich Square, Warsaw, Poland's newest public building, has just been occupied by judges and the Commission for Documenting Crimes Against the Polish Nation (whose main role is to collect documents concerning crimes by Nazis and Soviets).

Work on the courthouse began in June 1996, a few years after architects Marek Budzynski and Zbigniew Badowski were chosen in a competition organized by the Association of Polish architects (SARP). Their completed building comprises almost 500,000 square feet and is chiefly made of reinforced concrete floor slabs supported by reinforced concrete columns and communication shafts. The external walls are a semistructural curtain walling with reflective glazing.

Under a flat roof covered with plants, the architects have generously used glass throughout the building to make staircases, internal bridges, partitions, and skylights.

The architects suggested that the square, destroyed during the war, be re-created, though in updated form. As a result, the square has been rebuilt along the line where other buildings stood before WWII; the scale of the Supreme Court is the same as its predecessors, though the design itself is contemporary.

One corner is created to form a background frame for an existing monument honoring the 1944 Warsaw Uprising. The new building's dominant feature is a symbolic representation of the regulatory aspect of law—a "Collonade of Law," placed in front of the curtain wall, that forms one side of the square. The columns are inscripted in Latin from Roman law and Polish translations, enabling ordinary passersby to read what's written. *Wendy B. Schatzman*

NEW OFFICE TOWER IN ST. PAUL COMBINES HIGH-TECH IMAGE WITH HISTORIC CITY FABRIC

The recently completed Lawson Commons building, filling an entire block in the heart of downtown St. Paul, signals another major step in the city's on-going revitalization.

Designed by local architects BWBR, the 13-story office building—corporate headquarters for Lawson Software—features a traditional, warm red brick shell wrapped around a modern glass tower that curves out of the building's roof. That was the solution the architects devised for a design that would emulate the city's structural character of brick and stone while creating a high tech image for Lawson, Minnesota's largest software company. BWBR specified a distinct base, middle, and top, as in early 1900s architecture, capping the tower with a cornice recalling detailing of the nearby Saint Paul Hotel. Shea Architects of Minneapolis designed Lawson's corporate interiors, creating several up-to-the-moment spaces such as "ponder havens," or privacy nooks, "roundabouts" for standup meetings, and "the eggs," rooms for data and other electrical ports.

Lawson Commons, developed by Frauenshuh Companies, occupies a prized urban site, overlooking the classically proportioned Rice Park from the St. Peter Street street side and Wabasha, St. Paul's chief retail corridor, on the other. In a neighborhood of essentially brick and limestone buildings ranging from early 20th century structures to the 1985 Ordway Center for the Performing Arts, the completed Lawson Commons building fits in well, according to the city's planning department.

Technically, Lawson Commons is two buildings in one—about half the structure is a seven-level city-owned parking ramp, cleverly disguised by BWBR with vertical grills banded by art [illegible] At street level, a retail [illegible] directly to Wabasha and to [illegible] EcoLab public plaza [illegible] Apart from Lawson, [illegible] have not yet been [illegible]



COOPER-HEWITT BEGINS NEW AWARD PROGRAM

The Smithsonian Institution's Cooper-Hewitt National Design Museum has created a new awards program to honor American design. The first National Design Awards will be held in New York City in November, with First Lady Hillary Rodham Clinton serving as honorary chair. The prizes will be in three categories—Lifetime Achievement, Corporate Achievement, and Design Achievement—with the latter subdivided into three areas, including one for architecture, landscape architecture, and interior design. The awards will be bestowed each year on recipients whose work "demonstrates extraordinary vision and contributes to the nation's quality of life," in the museum's words. The inaugural jury includes David Kelley, CEO of design firm IDEO; architect Daniel Libeskind; William Mitchell, dean of the architecture program at M.I.T.; Martha Stewart; industrial designer William Stumpf; graphic designer Lorraine Wild; and artist and theater director Robert Wilson. (For a related article, see page 74.) *Soren Larson*

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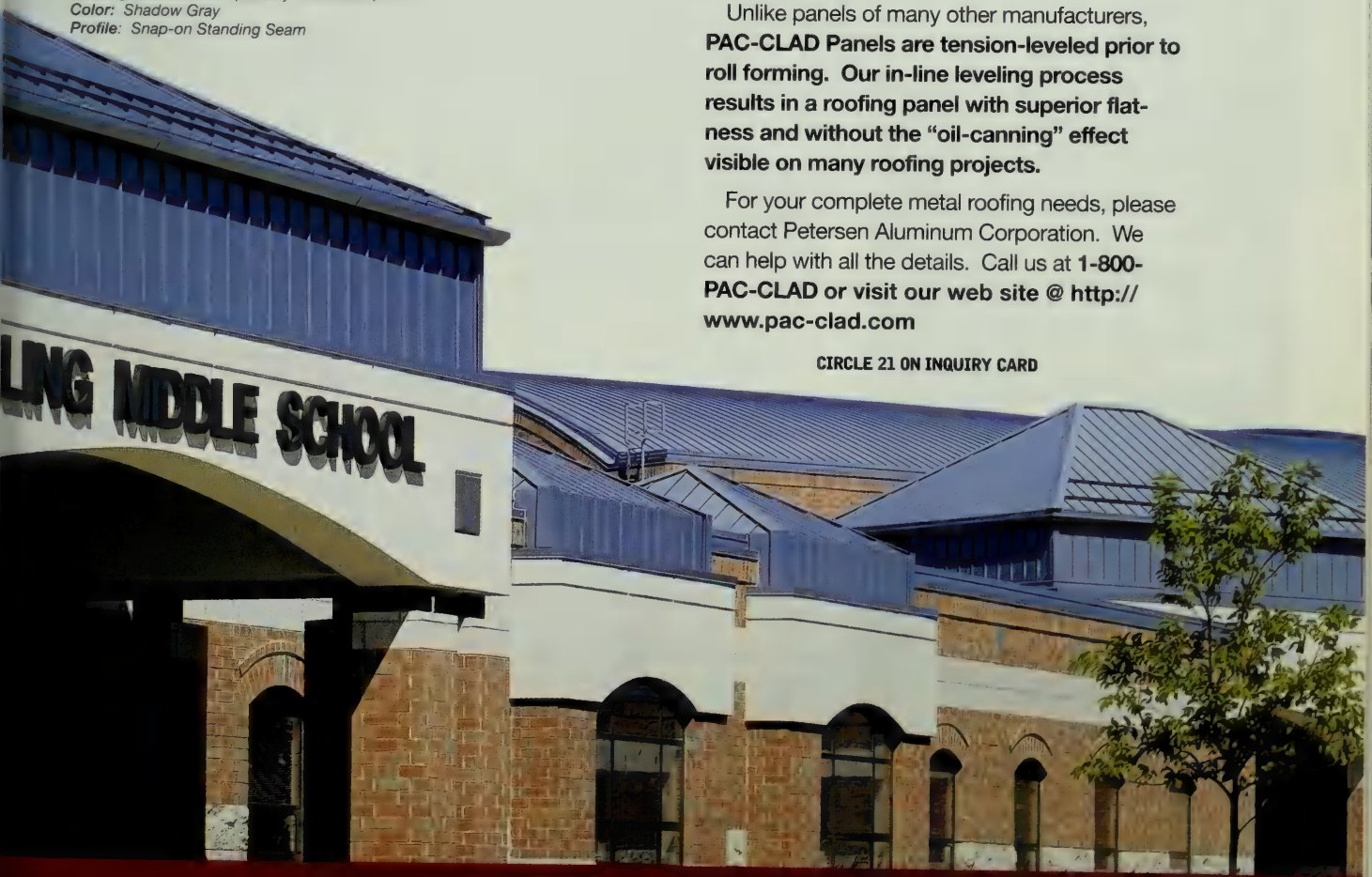
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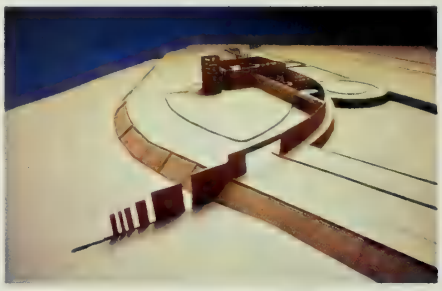
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News Briefs

The top of Tokyo At the center of its 7.8-million-square-foot Roppongi Hills complex, the largest private urban redevelopment project in Japan, the Mori Building Company plans to create the Mori Art Center, a museum dedicated to international art, architecture, and design of the late 20th and early 21st centuries. The Center will form relationships with foreign cultural institutions for collaborative exhibitions; New York's Museum of Modern Art is the principal partner and artistic advisor. New York City's Gluckman Mayner Architects is designing the new exhibition space, slated to open in 2003 in the top five floors of a new 54-story office tower by Kohn Pedersen Fox of New York City.

Tai for Tunis Tai Soo Kim Partners has been selected by the U.S. State Department to design a new embassy complex in Tunis, Tunisia. The project will begin with a master plan for a series of buildings on a 22-acre site and move through full design of an 80,000-square-foot chancery and two town houses. The project, which has an estimated $42 million construction cost, is part of an effort to improve security at overseas diplomatic missions and is Tai Soo Kim's first major design commission for the State Department.



Florida's home for water sports memorabilia.

Waterworks It appears that every leisure activity will eventually have its own shrine. Architects Design Group of Winter Park, Florida, has designed the American Water Sports Museum and Hall of Fame, now being built off the highway between Orlando and Tampa. The facility—which will showcase competitive water sports and athletes who have excelled in them—will form a sweeping, multicolored curve along its interstate frontage and will have an observation tower as an anchor, a lake for waterskiing, and a reflecting pool. It will be devoid of the sort of kitschy turrets and arches typically found near Orlando.

Going underground The Roosevelt Avenue subway station in Queens, one of the most heavily-used in the country, is being significantly rehabilitated for the first time since it opened in 1933. The $65-million project, overseen by the engineering group Vollmer Associates, along with Fox & Fowle Architects, involves a new building for the station entrance and bus terminal, the expansion or elimination of narrow corridors, and the creation of new retail space. Construction is expected to reach completion 2006.

Hope for Hartford Brennan Beer Gorman/Architects (BBG) is developing a master plan for Hartford's 33-acre waterfront district, known as Adriaen's Landing, as part of the city's downtown revitalization effort. The underutilized downtown district primarily accommodates surface-parking structures. BBG's master plan calls for a 700-room hotel with 100 residential condominium units. Accessible from the hotel will be a convention center, which, like the hotel, will use a palette of brick, stone, and glass. To create an animated street-level presence, the proposed "town Square" retail-and-entertainment venue will strive for a neighborhood feel. An assortment of restaurants,



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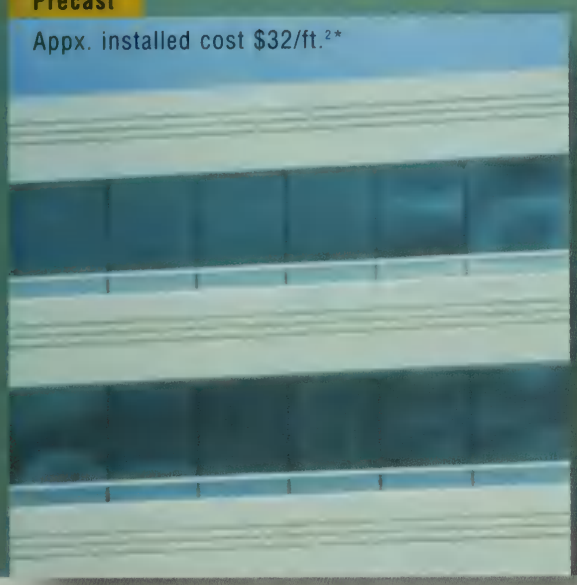
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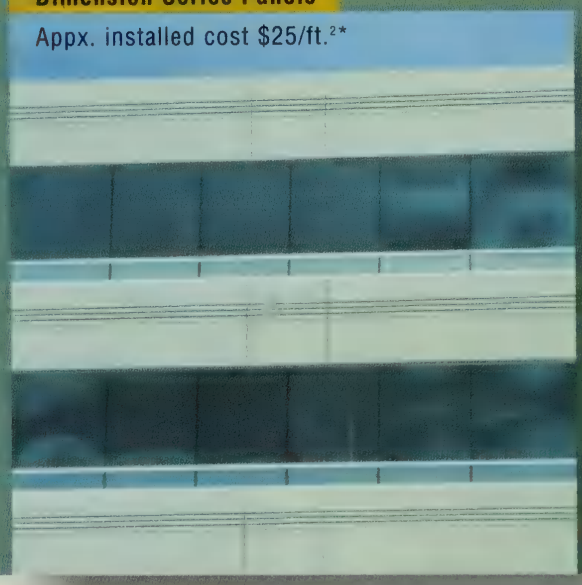
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shops, offices, and residential properties will be established, located in 2- or 3-story buildings in a variety of styles and materials.

Safety first Cities of all sizes are reemphasizing their downtowns. Paso Robles, Calif., has retained RRM Design Group of San Luis Obispo and EKONA of San Francisco to design a new Public Safety Center, to house a fire station, police station, and emergency response center. As part of the city's effort to keep its downtown vibrant, the $12.5-million project will be built adjacent to the city hall and a 1929 Carnegie library. The design will be in keeping with traditional small community downtowns: Much of the building is set back from the street level to fit with the existing downtown grid, the scale is in keeping with the area's other 2- to 3-story structures, and the building uses forms and materials (brick, roof tile, and terra-cotta trim) that are familiar in historic California downtown districts.

More for the millennium The government of Puerto Rico is holding a competition to design a monument to the third millennium, to be built in the new Third Millennium Park in San Juan. The competition is open to residents of Puerto Rico and the U.S., and architects, landscape architects, designers, artists, and engineers are invited to enter, though each team must have at least one registered architect. The first-stage entries will be due June 16, after which five winners, who will receive $10,000 each, will compete in the second stage, with an August 25 deadline. The second-stage winner, in addition to receiving a $50,000 cash prize, will get the commission to produce contract documents for their own winning design. The construction budget is set at $25 million. For more details, go to www.monumentcompetition.com.



BBG's new look for the Hartford riverfront district.

Library looks An international competition is underway to find an architect to design a new structure for La Grande Bibliothèque du Québec, the main public library in downtown Montréal. The building will give the public access to Quebec's lending collection and important documents from the city's heritage and lending collection. For details visit www.grandebibliotheque.qc.ca/concours.

This old house Japanese archaeologists have uncovered the remains of what is believed to be the world's oldest humanmade structure, on a hillside at Chichibu, north of Tokyo. The shelter is thought to have been built by Homo Erectus, known to have used stone tools. The site has been dated to half a million years ago and consists of what appear to be 10 post holes, forming two irregular pentagons, which may be the remains of two huts. Stone tools were also found.



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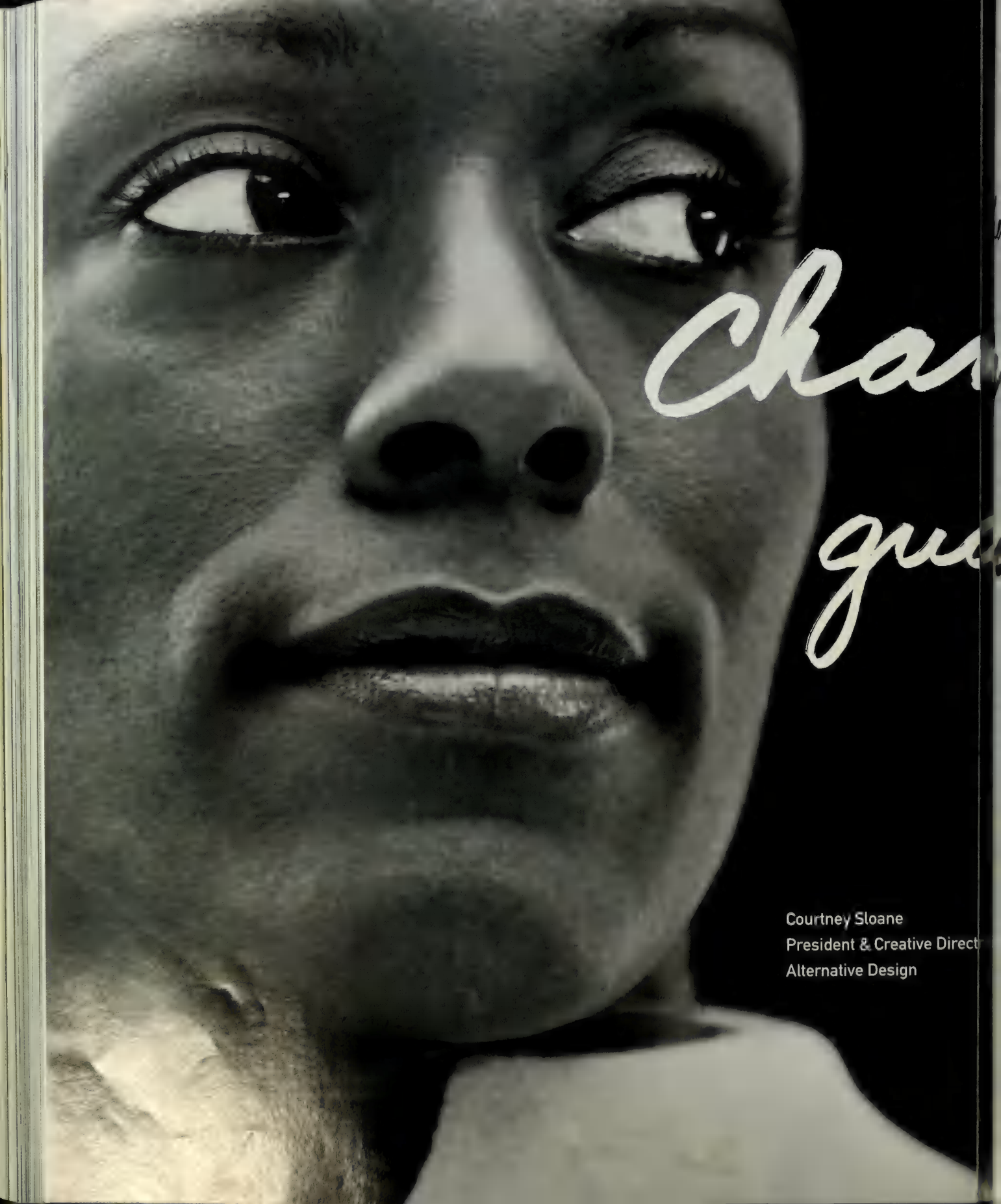
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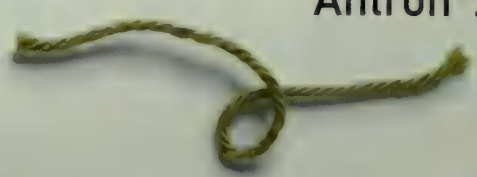
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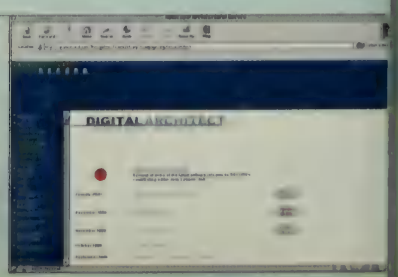
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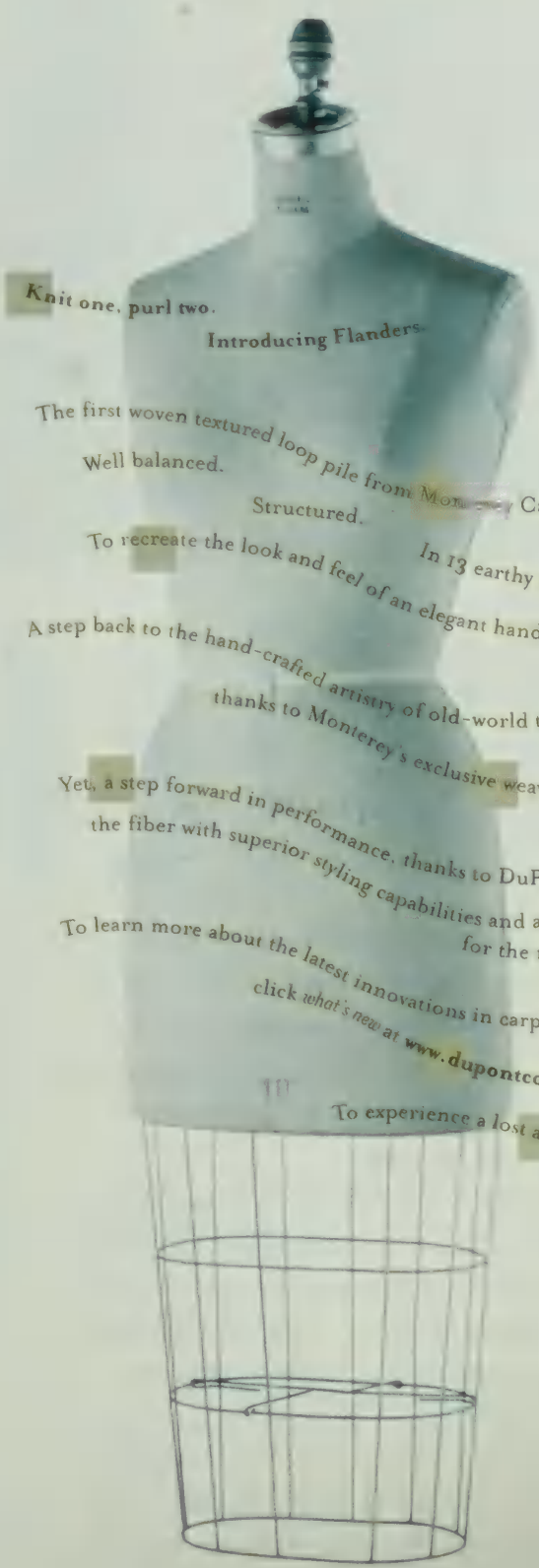
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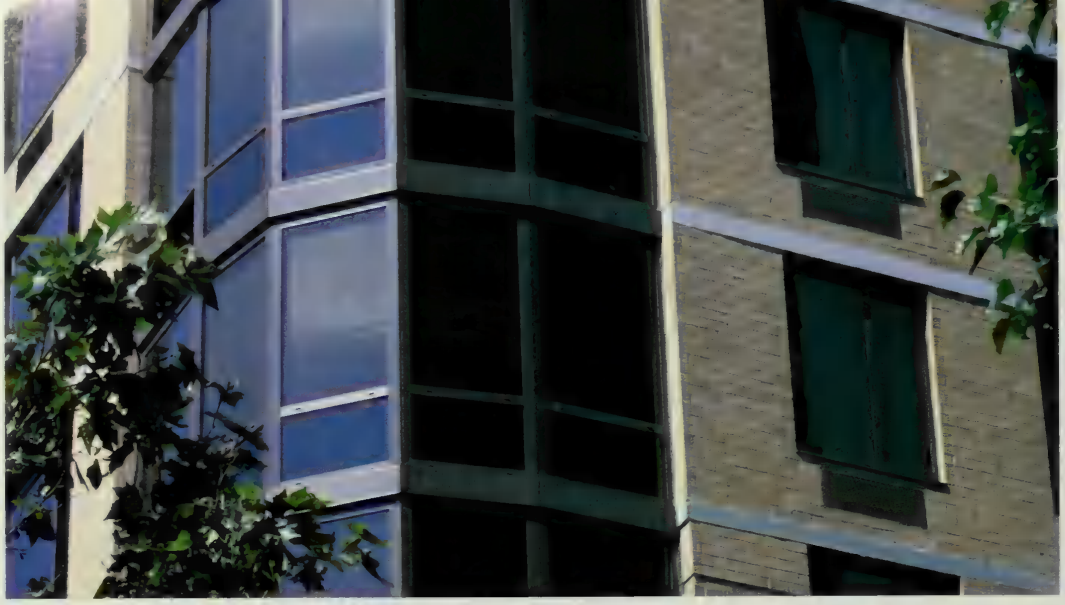
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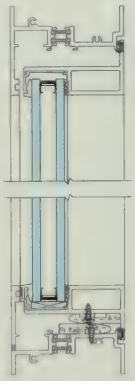
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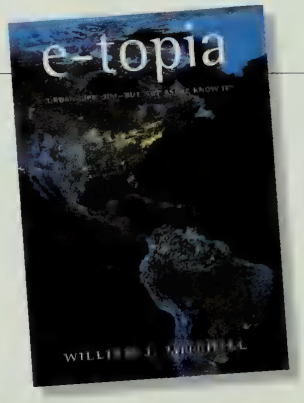
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Books



E-topia: Urban Life, Jim, but Not as We Know It, *by William Mitchell. Cambridge, Mass.: MIT Press, 1999. 192 pages, $23.*

Reviewed by B.J. Novitski

Readers seeking a photographic vision of how future technologies will create science fiction cities of sleek buildings and flying taxis will not find it in *E-topia.* William Mitchell, dean of the school of architecture and planning at the Massachusetts Institute of Technology, refrains from such specific speculations. Instead, he places technological development in a broad historical perspective, drawing parallels from many cultures over the past several millennia.

From that vantage point, his future is a level-headed extrapolation of today's trends to tomorrow's cities. Most importantly, he presents architects with a challenge: it's up to us to direct change toward richer rather than more fragmented urban environments.

As computers become smaller, cheaper, and smarter, Mitchell predicts, we'll find them embedded in our clothing to monitor our health and in our wallpaper to adjust the lights, temperature, and music in our houses. Architects will learn to include such "smart rooms" in their design palettes. Twenty-first century cities, he writes, will become "interlinked, interacting, silicon- and software-saturated smart, attentive, and responsive places."

But as videoconferencing and telecommuting make downtown offices less necessary, what will happen to our cities? Will we all work at home without time for personal interaction? Mitchell's optimistic answer is that when people can live and work anywhere, they will become more selective about where they choose to spend their nonworking time; presumably, they will pay more, not less, attention to urban quality.

Cities will transform themselves, says Mitchell, to accommodate those human activities that cannot be served by gadgets. Cozy coffee shops, live performances, venues for all manner of face-to-face encounters will thrive. Meanwhile, the suburbs, with pedestrian-accessible services such as childcare facilities and health clubs, will evolve into neighborhoods reminiscent of cohesive, self-sufficient 19th-century towns.

Speaking from the technologically wealthy environment of MIT, Mitchell gives scant attention to problems of economic and social inequity. Will computers, as he claims, eventually become inexpensive and universally accessible? Or will they become a permanent wedge between the world's haves and have-nots?

His book may err on the side of optimism, but he emphasizes that we needn't let negative possibilities overwhelm us. This book is an important call for architects to work proactively to strengthen the positive influence of technology on urban environments. As he says, "Our job is to design the future we want."

Home: The Twentieth-Century House, *by Deyan Sudjic. New York: Watson-Guptill, 1999, 240 pages, $45.*

Reviewed by Clifford A. Pearson

This survey of the modern house is much like a familiar fashion model: good looking but predictable. Its tale is told in two parts—first a quick review of each decade of the 20th century and then a compendium of 50 new designs (some built, some still on the boards).

Deyan Sudjic, the founding editor of the British magazine *Blueprint,* is a knowledgeable guide to the last hundred years of residential design. He covers each decade with a short essay and two or three iconic houses shown in a few pages each. But there are few surprises here in the choice of houses. For example, the 1930s are represented by Mies' Tugendhat House, Wright's Fallingwater, and Libera's Casa Malaparte.

The second part of the book is less formulaic with a collection of brief (mostly two-page) looks at new houses from around the world. The whirlwind tour goes from a house by Wiel Arets in Maastricht, Holland, to a sheep-farm house in Melbourne, Australia, by Denton Corker Marshall, with stops along the way in Barcelona for a pair of cottages by Enric Miralles, Benedetta Tagliabue Architects, a white concrete cube in Hiroshima by Shinichi Ogawa, and a steel-framed box raised off the ground in Bordeaux and designed by Lacaton & Vassal.



Glass Construction Manual, *by Christian Schittich, Gerald Staib, Dieter Balkow, Matthias Schuler, and Werner Sobek. Basel: Birkhäuser, 1999, 328 pages, $124.*

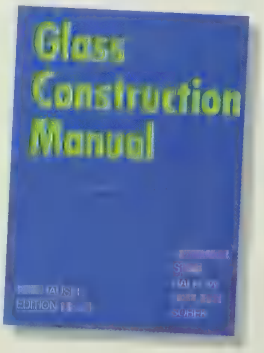
Reviewed by Sarah Amelar

Belying its utilitarian title, *Glass Construction Manual* is hardly dry. This latest volume in Edition DETAIL's materials-in-architecture series is a visually rich A-to-Z on glazing. (It is the first of this series translated from the original German into English). With high-quality color photography and abundant, consistently clear construction-detail drawings, the manual incorporates

Books

34 case studies—recent built examples of exceptional glass work.

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Heikkinen + Komonen's Finnish Embassy in Washington, D.C.; and Jean Nouvel's Exhibition and Administration Building in Paris. Among the more spectacular architectural feats, the studies also consider the quintessentially simple, but successful window.

Broad in scope, *Glass* *Manual* documents the historical ss, as well ical proper- truction iera-tions. The discussion of physical properties illuminates such characteristics as strength, load-bearing capabilities, and surface finishes.

With the clarity, lightness, and elegance of glass, the book takes on a complex topic, outlining an intelligent basis for design.

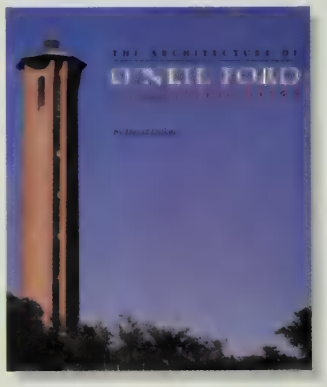
Morphosis: Buildings and Projects, 1993-1997, *essays by Thom Mayne, Tony Robins, and Anthony Vidler. New York: Rizzoli, 1999, 456 pages, $85.*

Reviewed by Clifford A. Pearson

If you're looking for the table of contents in this latest monograph on the Los Angeles firm Morphosis, you'll find it about two-thirds of the way into the volume. Don't bother looking for page numbers; only the 13 appendices are paginated. And, no, you're not dyslexic; many pages are printed on translucent vellum so words on the back side comes through on the front. Like Morphosis and its founding partner Thom Mayne, this book revels in the willful breaking of convention.

But stick with it for awhile and you'll get sucked into this chaotic, off-balanced universe. First, it serves up several hundred pages of computer-generated images of Morphosis projects past and present: hyperkinetic renderings that fly you around and through some fascinating places, including unbuilt designs for the Spreebogen development in Berlin and the Prado Museum in Madrid and recently completed buildings for Hypo Bank in Austria and the Diamond Ranch High School in Pomona, Calif. Only then does any text explain the projects and show some of the seductive hand drawings that go with them.

The book's presentation requires the reader to do more work than is expected from the typical monograph. If you're not willing to roll up your sleeves and get engaged, you shouldn't bother. The rewards, though, of making the effort are considerable. Mayne's work has gotten richer and more intriguing in recent years just as he and his firm have begun to build on a significant scale.



The combination of vellum and heavy-stock white pages, metallic-ink illustrations, and four-color photographs make this book a blast to look at and touch. *Morphosis: Buildings and Projects, 1993-1997* is not a casual read; it's a jolt. So buckle your seat belts and get ready for the ride.

The Architecture of O'Neil Ford: Celebrating Place, *by David Dillon. Austin: University of Texas Press, 1999, 176 pages, $30.*

Reviewed by Clifford A. Pearson

Often overlooked in general histories of architecture these days, O'Neil Ford was the most important Texas architect of his generation. A straight-talking man who took pride in the enemies, as well as the friends, he made, Ford pioneered new building technologies (such as lift-slab construction and prestressed concrete shells) after World War II and showed how modern design could respond to local conditions and materials. From his office in San Antonio, he gave "modernism a clear regional accent" beginning in the 1930s, explains author David Dillon, and produced a "series of refined contemporary houses that combined the humanizing influences of Alvar Aalto and the California modernists with the relaxed familiarity of rural Texas."

Ford is perhaps best known for his large academic commissions, particularly Trinity University in San Antonio, the University of Dallas, and Skidmore College in Saratoga Springs, N.Y. Dillon, who is the architecture critic for the *Dallas Morning News* and a contributing editor to *Architectural Record*, examines Ford's signature projects and weaves into his text telling anecdotes from the architect's life. Although clearly an admirer of Ford's work, Dillon doesn't shy from noting the problems with certain projects and the limitations of favorite technologies such as lift-slab construction.

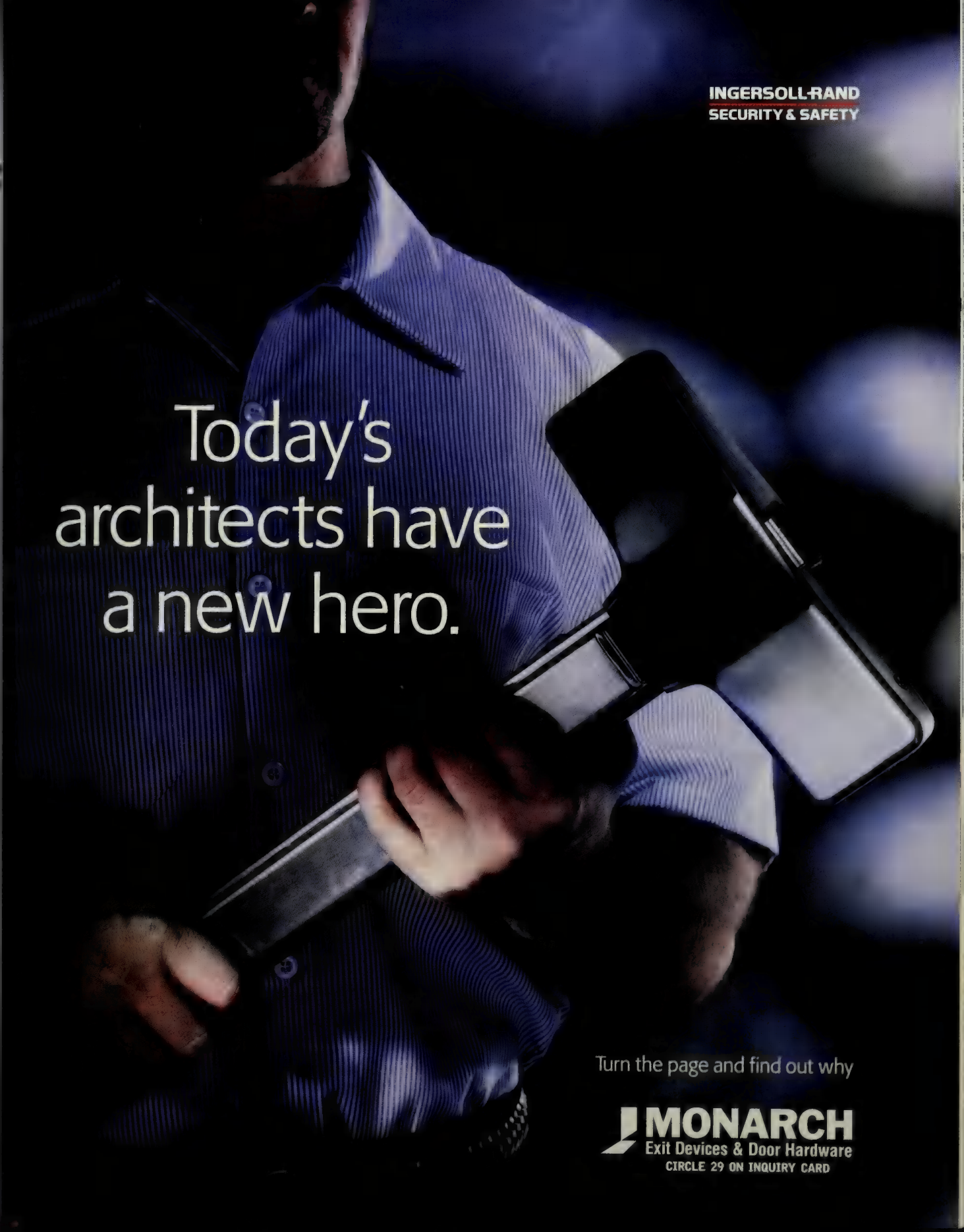
Thought Palaces, *by Peter Magyar. Amsterdam: Architectura & Natura Press, 1999, 336 pages, $30.*

Reviewed by Robert McCarter

Thought Palaces presents a provocative collection of drawings of 58 projects by educator and architect Peter Magyar. Produced during 35 years of work in Europe, Africa, and the Americas, these drawings integrate diverse definitions and criticisms of modern architecture that have emerged since 1965. In his precise and poetic drawings, Magyar inflects the forms of modernism to engage fundamental principles he has discovered in vernacular culture, such as the use of local materials and traditional building morphologies.

While always respecting existing urban forms, Magyar designs by carving and shaping heavy, anchored, earthbound masses, literally drawing his buildings up out of their sites through an organic fusion of geometry and ground. The inventiveness with which Magyar responds to both fundamental principles and the specifics of each project exemplifies Louis Kahn's definition of architecture: "Always more than the sum of its measurable aspects, a work of architecture is that which allows us to experience the immeasurable."

Robert McCarter is an architect and chair of the department of architecture at the University of Florida. His latest book is Frank Lloyd Wright *(Phaidon, 1997).*


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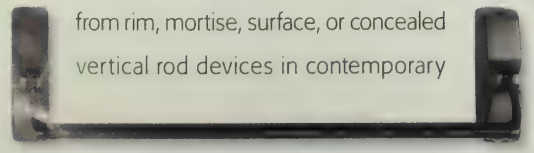


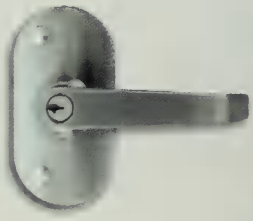
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A bombed-out Beirut is being born again—fitfully

Correspondent's File

By Michael Stanton

Not by accident, the end of the Cold War coincided with the inconclusive cessation of the hot war fought in Lebanon—particularly in the streets of Beirut—for 15 years. The reconstruction of the big city that contains, in its metropolitan area, more than half of this small nation's population, serves as an example of the enthusiasm and problems that have redefined global dynamics in the last decade.

Compared to the Mediterranean metropolises that share its topography and culture, the city stands ravaged by war and neglect. Pockmarks from small arms fire or the gaping wounds of artillery and rocket hits mark most buildings. They become ubiquitous around the Green Line, the urban no-man's-land between the major sides in this complex war with many factions, all of whom fought each other, and the foreigners who intervened, at one moment of shifting allegiances or another.

Along the Line, and after almost a decade without fighting, the buildings still hunch in on collapsed floors or stand partially melted from the barrage, reduced to generic forms as all detail was shot away. These structures wait, like patients in triage, for demolition or reconstruction. Many are still occupied by squatters and the displaced who form a sociological counterpoint to the evident physical destruction. Furthermore, damage from combat is rivaled by an infrastructural collapse that is far from repair.

New construction and renovation have slowed in recent years as the post-war euphoria and the heated economy that accompanied it have subsided. Nonetheless, the city is transformed. Actually, more construction occurred during the war than demolition. An almost pure exercise in capitalism, wartime building was the result of speculation without restraint as regulations that governed construction dissolved along with the nation. The Lebanese, with characteristic vigor, continued to develop real estate in every lull in the conflict or whenever a site was outside the shifting trajectories of the many factions' shooting.

Michael Stanton is currently a Visiting Associate Professor at the American University of Beirut. His design work has been awarded four times by the ACSA and he has won the Young Architect's Award from the Architectural League of New York and the Biennial Steedman Prize. Over the last six years he has directed 11 international workshops in Venice and Barcelona. Before Beirut, he was a guest professor at the Royal Danish Academy in Copenhagen.

Seeds and speculation

A precedent was thus set for post-war development. Tower blocks now climb the mountains for 30 miles along the sea, presenting a fantastic landscape of pristine Mediterraneanism to the distant viewer—though brutally disappointing as closer inspection reveals that this expression of rampant development is generally without quality.

Decorating the shells of speculation are a mix of post-modernism of a global sort and vernacular reference that evokes "identity" through the attachment of arches, bay windows, and abstract decorative motifs. This mixture of pastiche and local form reduced to appliqué seems to try to remedy cultural amnesia—but amnesia may actually be their intent. In the trauma of Lebanon, what is presented in terms of new architecture seems more a substitution than a retrieval. The cultural field is being cleared to serve the new forces that are reshaping the economy. History is commandeered to advance ideology and the market.



Old and new are juxtaposed on the Damascus Road, leading out of the city.

The current landscape is not without its fine projects. The Interdesign building in West Beirut designed by Khalil Khoury, begun before the war but recently completed, is evocative exposed concrete expressionism. Perhaps the most distinguished—and certainly the most-published—post-war project is a nightclub called BO18, a phenomenon that is appropriate to the new Beirut. For the project, Khoury's son Bernard produced a bunker with retractable roofs. BO18 is buried and surrounded by an ellipse of parked cars; all that is left on the surface are Range Rovers and Mercedes, the primary emblems of the bourgeoisie who frequent the place. The club is a chimera of moving panels and convertible furniture. As it is underground, it is also a tomb, perhaps too literally referring to the notorious massacre that occurred in the area at the beginning of the war, but it is also a shelter, one of the

spaces about which Beirutis are now nostalgic, places where social mixing and community were formed under the pressure of conflict.

The qualitative emptiness of most new buildings in Beirut has produced an overheated interest in the actual emptiness at the city's urban heart. The Beirut Central District (BCD) is now a symbol, in its vacuity, of the civic fragmentation and sectarianism that were not resolved—and in some ways may have been worsened—by the war. At the end of the fighting, the appropriation, by governmental decree, of all property in the center and the formation of Solidere, a real-estate corporation to develop it, was shortly followed by the elevation of that corporation's head, Rafik Hariri, to the position of Prime Minister—and the almost total demolition, by explosives, of the center of the city to clear the way for modern projects, such as the United Nations headquarters, designed by Pierre Khouri and completed in 1997. In all, more than 1,000 buildings disappeared.

New battles

And so the war continues in the building process, both in the demolition of the heterogeneous downtown and in the assault on ideology that is its rebuilding. The erasure of history through the annihilation of the urban fabric offers a chance to rewrite it. Identity is an issue for people who feel they are losing that which distinguishes them. This is indeed the case with the Lebanese. But the gestures toward cultural recovery seem to primarily serve business interests. If architecture is any indication, a plural and liberal society within the region is redefining itself as pure marketplace.





New souks, built by Solidere, have risen in the central district (above); the Lebanese Overseas Bank, designed by Pierre Khouri (left); the central district's United Nations Headquarters, also designed by Pierre Khouri (below).



Most of the buildings were recoverable, if badly damaged, in the front-line area. The choice of which to save is indicative of current mindsets. The mosques and churches remain, underlining the importance of the various sects that define the nation's political geography and identified the militias during the war. Certain fine modern buildings from the period of independence, like the Starco and Azzarieh complexes and the Arab Bank, were renovated, but the majority of other saved structures are historicist confections from the late-Ottoman and French periods. Many older buildings, ancient and vernacular, were destroyed.

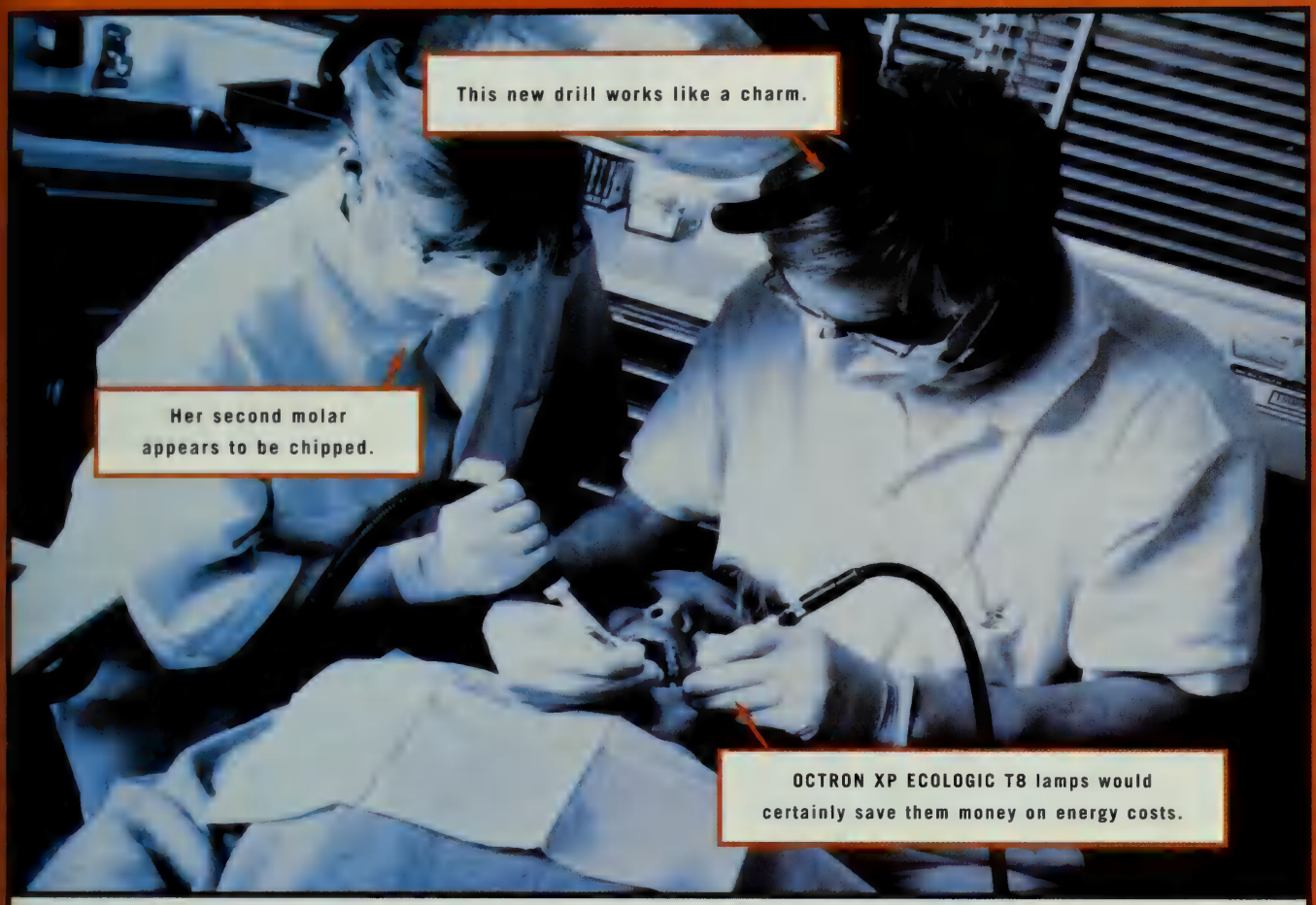
So were the structures that defined the major prewar civic spaces like Martyr's Square, the traditional main plaza of the city. Any references to the 5,000-year history of the city were reduced to archeology from Phoenician and Roman times. History's living presence in the fragments of old city fabric in the ancient souks and casbahs around the center has been replaced by these safely contained ancient relics. The reason for this is not just a museum-like strategy, but also a simple real-estate imperative: the old buildings were too small. The turn-of-the-century structures better optimize the potentially valuable property. Also, their language—a cross of Parisian boulevard and orientalism—is appropriate to this future bourgeois neutral ground.

Possibly the best news about the BCD at this point is that it is mostly unbuilt, and remains so due to the economic slump. The potential is still there for a dynamic metropolitan statement far, in spirit, from the reconstructions and simulacra that are beginning to occupy the urban wasteland.

Identity issues

In terms of recent design, local architects are imitating the work of the international post-modernists involved in Beirut. Terry Farrell has designed several buildings and Ricardo Bofill was responsible for wartime planning initiatives. Corporate firms from the U.S. and Europe are getting involved and their work creates a sort of salable genericness. A form of New Urbanism seems to be determining the streetscape, and the movement's familiar rhetoric promises Seaside at ground zero. The problems may stem from the fact that almost the whole downtown has one owner with one objective. This may be unique in the non-Communist world. But chaos, as embodied in multiple ownership, is what cities thrive on. The struggle makes a metropolitan pressure and formal mix that is the essence of the urban. On Solidere's fantasy islands, these seem lacking.

The shell of an electrical station by Abdul-Halim Jabr and some renovated pre-war Modernist buildings form a few exceptions. Meanwhile, Rafael Moneo is reconstructing the souks that were demolished after the war. He recognized that their intimate scale and funky casualness is unrepeatable, and has opted instead to build a shopping mall more akin to the Lilla complex he collaborated



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on in Barcelona. The souks become a festive marketplace, but are also nondescript.

In this way, much focus is on revivalist buildings with regional decoration. The legacy of great modern architecture from the period of independence is largely overlooked—even though this work, by Lebanese and Europeans, is of consistently high quality. Oscar Niemeyer designed a huge fairground in Tripoli and Aalto worked on an office complex in West Beirut, but the good work from that era by local designers is most noteworthy. Sadly, this seems to be without effect on current practice.

Urban opportunities

Though it is made so often, the comparison of Beirut with Berlin may be facile. It ignores the 45-year lag between the reconstruction of the two cities and the social differences that separate Germany from the Middle East. Certainly the post-war fabric is similar, with its split urbanism and tortured fabric, but in Beirut the scars are fresh and the fragments impermanent. A chance, lost now in Berlin, remains. Maybe a comparison with Barcelona is more appropriate, for the topography and Mediterranean pleasure principles are nearly identical. But Barcelona has been a laboratory for urbanism for 300 years and is in a social democracy.

On the whole, it is better to liken Beirut with the situation in Havana. One city is dilapidated from the effects of 15 years of real war, while the other is the victim of a 40-year economic assault, but the dissolution is similar and the indomitable spirit of the residents is equally infectious. Both cities suffer from a collapsed infrastructure, yet are able to present an exciting urbanism brought on by shifting and displaced populations and by unanticipated metropolitan juxtapositions.

But is there a place in this context for architecture, especially in Beirut where, unlike Cuba, there is little concern from the authorities to support construction for the social strata that shape new urban configurations? This question is central, given the hazy prospects of both cultures. The tropical energy and sense of a fantastic pressure toward the future are so compelling in these two urban battlegrounds that it seems architects and urbanists should find that place where they can enter the other discourse, even as they inevitably address the desires of power. ■



A view of Sodeko Square, on the Green Line, through a bombed-out villa.



CIRCLE 32 ON INQUIRY CARD

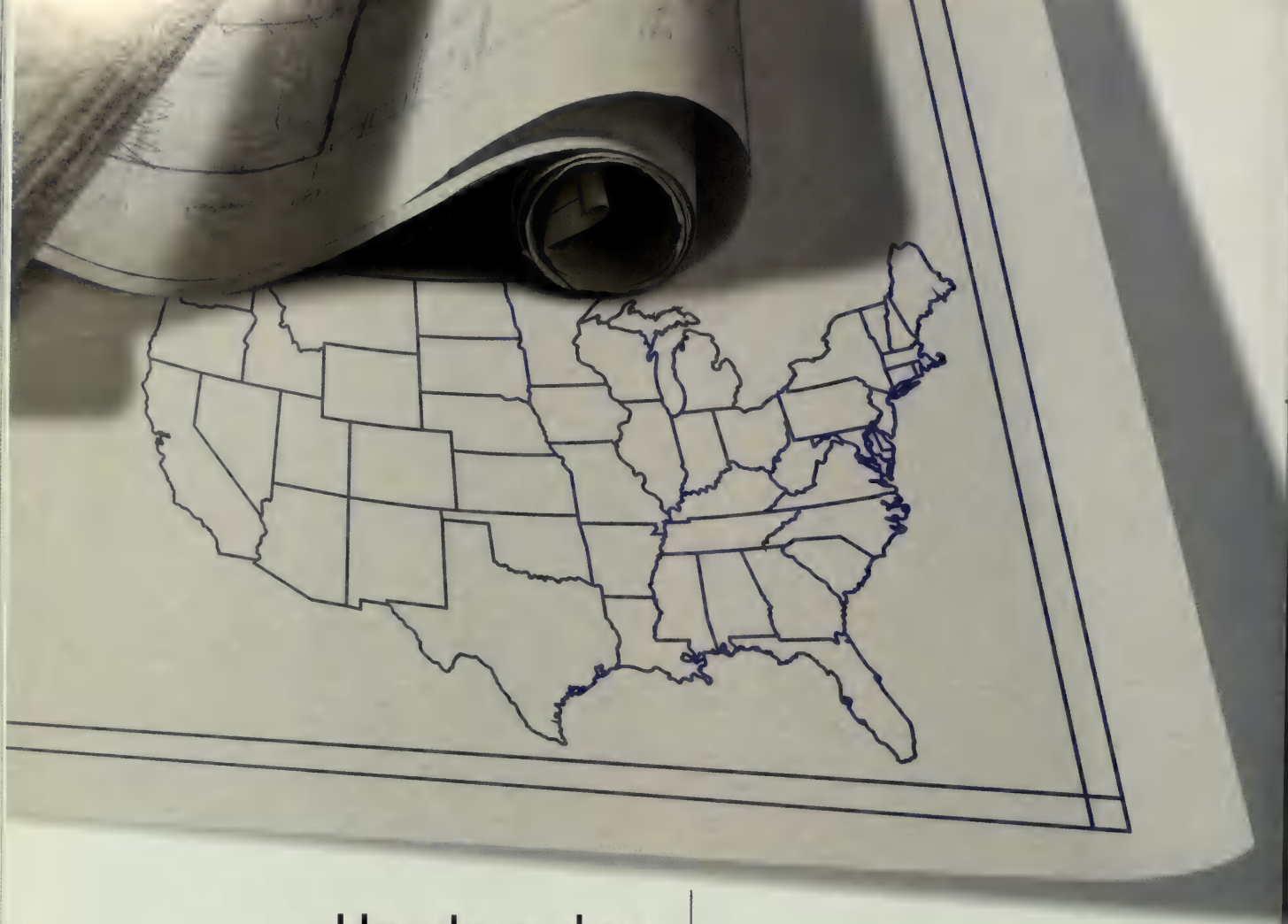
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What your mother never told you: Conventional wisdom strategies for greater profitability

Practice Matters

By Elizabeth Harrison Kubany and Charles Linn, AIA

Good economic times can lead to bad fiscal habits. When profits are high, it is easy to overlook a late payment from a client, or to spend lots of money pursuing projects the firm is unlikely to get. During the last recession, many architects tightened up their operating policies to maintain profits. Some have maintained these simple business strategies based on conventional wisdom because they improve the bottom line whether times are good or bad.

Grade your clients

With an average of eight percent of most firms' net billings going into marketing, chasing only the right projects can keep business development costs down. "We have a screening process that keeps us from going after jobs that we aren't likely to get," says Don Hackl, FAIA, of Loebl Schlossman & Hackl in Chicago. His firm's executive committee reviews clients on the basis of about a dozen criteria—whether it is a project type in which the firm has experience, what resources might be available to the client for funding the project, and whether the firm has done work for the client in the past. "The executive committee totals up the scorecard. If there are enough points, someone can go after the job. If not, we walk away," says Hackl.

What's it gonna cost me?

It is impossible to set a good fee without understanding what it will cost to produce the project. Robert Hillier, FAIA, president of the Hillier Group, headquartered in Princeton, N.J., takes this a step further. He suggests creating a business plan for every project, including estimates of how many man-hours will be required, and how much consulting and miscellaneous overhead will cost. These estimates can then be used to create realistic work schedules. Hillier began this formal planning because some clients were demanding that such schedules be available for review. He now does one for every project because "it is the most effective way to track costs from start to finish."

Scope creep

Knowing the scope of work is the key to understanding what your costs will be. William Harris, AIA, of Signer Harris Architects in Cambridge, Mass., says it is important that everyone in the office—from the project manager to the draftsperson—understands what the contract covers: "That way we don't spend time doing work that isn't covered by the contract." Architects often lament that clients ask them to expand the scope of work without expecting to pay for additional services. If the contract doesn't carefully detail the scope of work or if language in the contract is vague, the architect might be in a bind. To avoid such misunderstandings, the architect should spend time establishing the scope of work with the owner and itemizing it in the contract.

One architect admitted, "We used to lose about 15 percent on every job taking care of things that weren't under our scope of work. Finally we had our lawyer draw up several ready-to-fax contract amendments to the owner-architect agreements which we issue immediately when we receive a scope-of-work-change request." These state the architect's understanding of what additional work has been requested, give a price for executing the work, and explain whether this change to the contract will affect the liability of the architect in any way. The client must sign the form and return it to the architect before any change in the scope of work is executed.

Cut your losses

"I would say that every architectural firm has been guilty of not stopping the work when a client has failed to pay on time," says Don Hackl. Architects are often afraid to alienate their clients by being tough on late invoices; there are clients who are aware of this reluctance and are quite willing to take advantage of it. But late payments should be a red flag for architects: If a client is unwilling or unable to stay current with the architect's invoices, there may be problems with funding for the project. It may be best for the firm to get out before it takes a huge hit financially.

For international work, where it can be even harder to collect on a delinquent account, many firms require the client to pay a retainer. If payment is not received by the due date, Hackl faxes a notice that the work will be stopped in seven days, the project team will be broken up and reassigned, and the client will have to pay a fee to have the firm reassemble the team and commence work again. "It costs a lot of money to stop and restart a job; we should not have to eat this cost because the client hasn't paid on time," says Hackl.

Put it in the contract

Paying close attention to the contract, and making sure the client understands that contract, can help improve profitability. Harris says, "I always try to go through the salient items in the fee proposal face-to-face to identify and clarify all the potential issues. My profitability has increased because I do not have to walk through invoices with the client once they are sent." Harris also touts the B141 1997 because it "allows me to spell out the initial assumptions that will impact my costs." For instance, he might assume the project will be built by a general contractor with a licensed supervisor. If that changed—say the client decided his brother-in-law (who was just breaking into the construction industry) was going to build the project instead—the architect's scope would be affected.

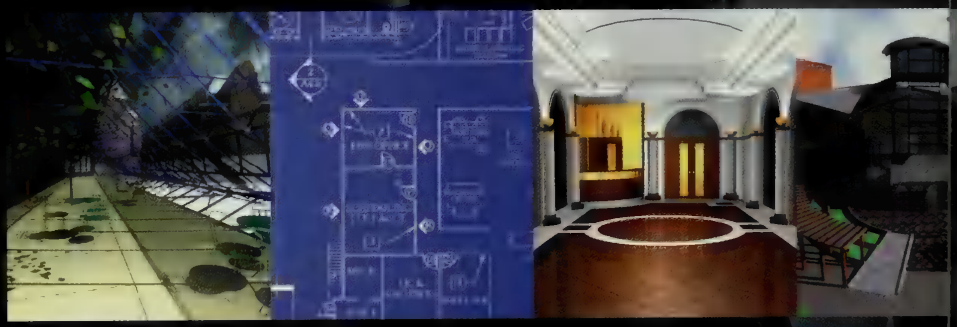
Stanley Stark, AIA, a partner at HLW International in New York City, says his firm has determined that it costs more money to work with certain consultants. While HLW does not try to dictate whom the client contracts with, "We let them know during negotiations that we will have to charge more if they work with certain companies with which we have had bad past experiences." ■

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CIRCLE 35 ON INQUIRY CA

An urbanist says a sense of place is more important than the design itself

Critique

Interview by Andrea Oppenheimer Dean

Seven years ago, The New York Times *described Fred Kent as someone "who would like to see most architects hit the road." A disciple of William H. ("Holly") Whyte, the influential urbanist who studied the city by observing how people used streets and plazas, Kent is president of the Project for Public Spaces (PPS), a nonprofit group that puts Whyte's principles to work in retrofitting problematic parks, plazas, shopping strips, and streets across America. Kent sat for an interview with* RECORD *to talk about recent developments in our urban landscape.*

Record: During the postwar decades, as American cities declined, public spaces followed suit—and so, it seemed, did old patterns of community cohesion. Now that cities are making a comeback, has interest in public spaces revived?

Kent: I think the era when there was a fear of cities and the diversity they represented is coming to an end, but this important shift has not gotten much press or television coverage. At PPS, we are getting more and more calls from mayors, nonprofit organizers—everyone but designers—asking us to help them bring back their public spaces, their town squares.

Record: Your mentor, Holly Whyte, said, "It's hard to design a space that will not attract people. What is remarkable is how often this has been accomplished." What are architects doing wrong?

Kent: They're making visual designs rather than civic places. A good place has less to do with how a space looks than how people use it: the activities that go on there, how comfortable it is, how easy it is to get to and walk through, the public image it projects. As we begin to realize how important the civic realm is and how we have lost it in recent years, we realize that we've relegated its design to a profession that seems interested mainly in making visual statements.

Take Centennial Park in Atlanta. In 1996 the city developed a plan for a major park in conjunction with the Olympics. The park was to be a metaphor for a quilt and was therefore laid out using a grid system. The problem is that many of the activities that go on in a park—walking, jogging, skating—don't fit into a grid. When people start talking about metaphors you know they're getting away from anything to do with human beings.

Bryant Park, though successful, also shows a lack of understanding of public spaces. In the back of the park near the public library there is a restaurant [Bryant Park Grill], which is a good idea; food is a great draw. The problem is you can't see into the restaurant, and the people inside can't see out. The building is impenetrable; it's apart from the park.

Record: Does [New York City's] Battery Park City work?

Kent: It's not bad; it's just not great. The main problem is that the base of the buildings were not designed to take advantage of their proximity to the public walkway and the water. [Not counting] one central location, there are few restaurants and cafes overlooking the water. And many of the spaces don't have the flexibility that is critical for allowing incremental growth. In great public spaces, such as Central Park, activities just seem to fit along pathways. That's because Olmsted would try something, see how it worked, and change it if necessary. At Battery Park City everything was fixed; it's hard to evolve it.

Record: What are some of your favorite public places?

Kent: A key word is "triangulation." The best type of public spaces are ones where various activities are combined or triangulated. My favorite hypothetical example is a square that has a library and a coffee shop. The library has a children's reading room that's next to a playground, at the edge of which is a coffee shop for parents. In front of the library you'd have a square, for weekly markets, seasonal events, art shows, performances. Ideally, also around the square would be a post office, a community center or meeting place, a fire station, and some stores. You put all those together and you have triangulation.

Record: What about actual public spaces that are successful?



In Atlanta, Centennial Park's grid plan doesn't accommodate activities like jogging or skating, says Kent.

Andrea Oppenheimer Dean is a contributing editor for RECORD *and lives in Washington, D.C.*

Kent: Some of the best were not planned by designers. Take good streets. Bleecker Street in New York City has more diverse stores than any shopping mall. Each block has its own character. In one neighborhood people shop for cheese, bread, fish, meat, etc. Another has antiques and gift shops and still another has the clubs Bleecker Street is known for. All of the buildings are small, which makes it a good place for people to walk. The entertainment, restaurants, food stores, playgrounds, and little squares fulfill a complex set of needs for people in an urban setting. They support the local economy by stimulating local entrepreneurship.

Record: Your emphasis on locale and community fits in with the New Urbanist view. Have they made successful public spaces?

Kent: They're not about place-making yet. It's very hard for people trained in this era to realize place is more important than design. As a nonarchitect, I think you need 10 different kinds of designers working within a framework. You get more chaos than some people would like, but you get a lot more people enjoying it. The best public spaces have grown over the years.

IT'S HARD FOR PEOPLE TO REALIZE THAT PLACE IS MORE IMPORTANT THAN DESIGN.

Record: How would you rate [the New Urbanist town of] Celebration's public spaces?

Kent: They are based on a visual aesthetic of an idealized place. There is a square in Celebration called Market Square, and I assumed there would at times be a market there. No chance. This is a little park with trees and seating. It's all visual. Around it is a city hall, which has so many columns that you can't see the building behind them, and a post office that is pushed off into a corner.

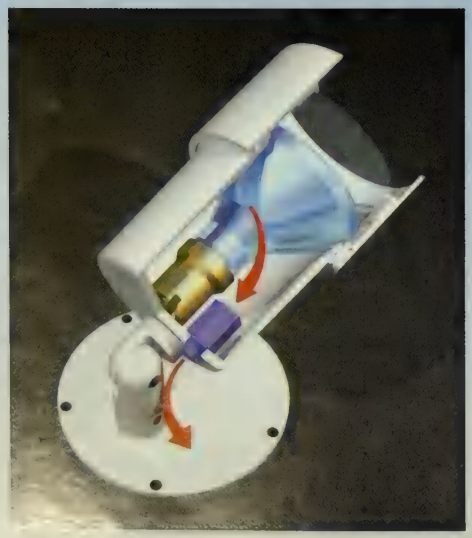
At first glance Main Street looks very nice. There are nicely designed arcades, but they are too narrow for outdoor activity, to put places to sit, things to sell. And the buildings are attractive but not very functional. In the early 1900s, which is the decade that many of the buildings in Celebration try to replicate, designers understood that you design a window for a dress store differently than for a shoe store or a jewelry store. In Celebration, the windows are all alike.

A city I like is Roebling, N.J. It's a company town, built between 1904 and 1906 by one of the sons of John A. Roebling, designer of the Brooklyn Bridge. If you were to rate all the New Urbanist communities on a scale of one to 10, you might get a five. Roebling would be a nine. It has connected housing, separate, single-story family homes, narrow streets, commercial areas, a fire station that contains both the community center and a library. The firemen also function as volunteers who maintain the community center. It seems so perfect you can't believe it's real, but it is.

Another example is Rockefeller Center, one of the great squares. The buildings' commercial spaces have evolved over time and improved. There used to be banks at street level and now there are retail uses. The Today Show went into an old bank office; the auction house Christie's went into a garage. In the new part of Rockefeller Center, which was designed in the `60s, the architecture is so overscaled that it is nearly impossible to change.

But some cities are changing and some architects have begun to realize the positive impact their buildings can have if they are designed as places, not just for aesthetics. I used to say the newest building in any city would be the worst. In some cities that's no longer true. ■

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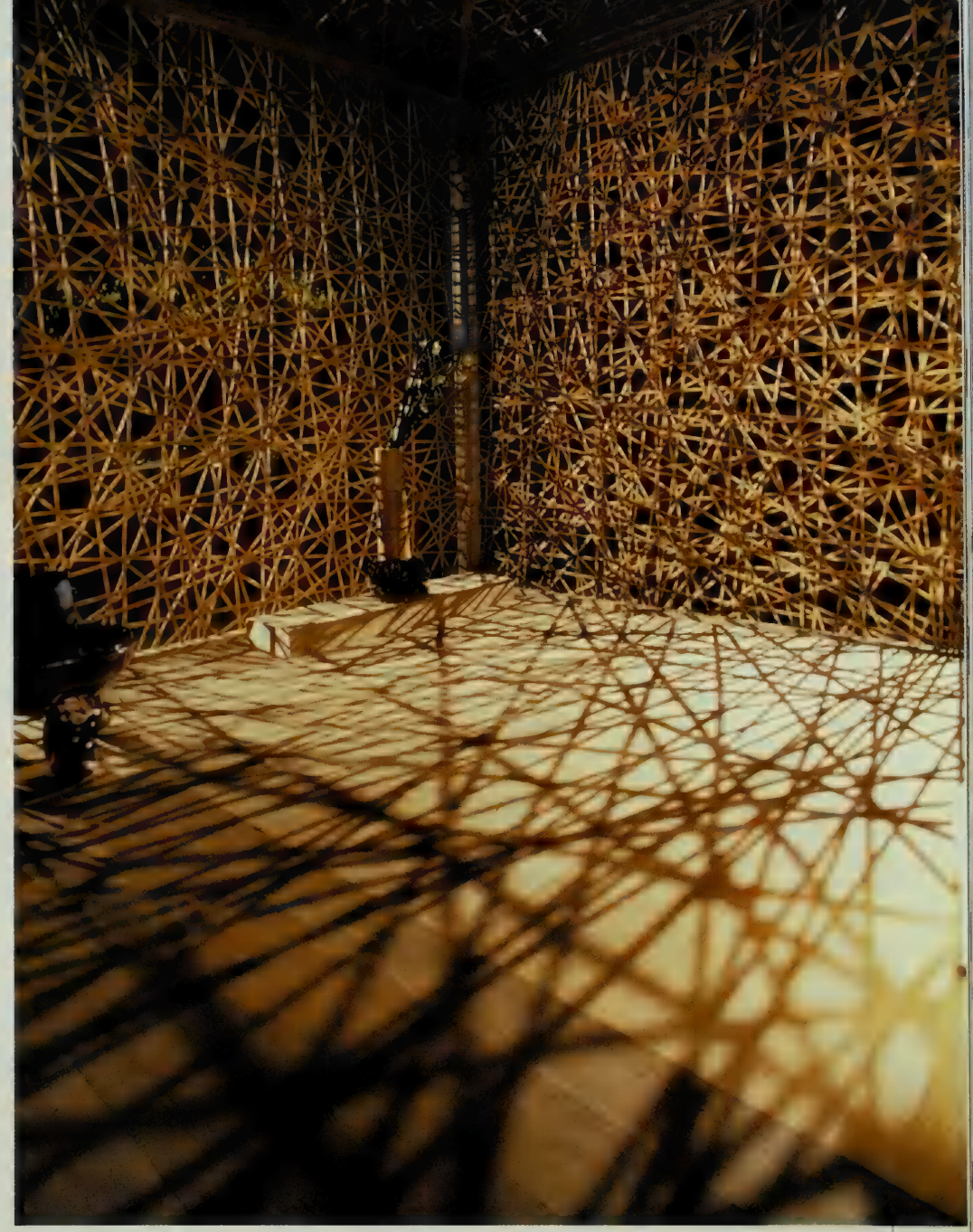
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Snapshot



By Elizabeth Harrison Kubany

Modern teahouses steeped in tradition

Tea is central to the Japanese way of life. The tea ceremony, a symbolic pursuit with roots in Zen Buddhism, aims to purify the soul. Tokyo-based architect Shigeru Uchida believes that tea cures one's spiritual as well as literal thirst. The basic principle of the ceremony is that one meets another person for the first time only once and must therefore do everything possible to appreciate the encounter. From this basic tenet emerged a rigorous aesthetic that protects the sanctity of the room for the tea ceremony, as well as the utensils for serving the tea.

According to Uchida, a full understanding of the philosophy behind the formalized, methodical tea ceremony was lost as Japan entered modern times. Yet the ceremony's aesthetic and symbolism constantly reappear in Japanese daily life and are deeply embedded in the cultural memory of the Japanese people.

To create a bridge between lost Japanese values and the modern day, Uchida designed three styles of contemporary ready-to-assemble teahouses, each with bamboo walls, sliding cedar doors, and a stone step on which to



Shigeru Uchida's modern take on the teahouse captures the essence of this ancient form. These buildings enclose a "realm of emptiness," a uniquely Japanese concept of space, where the soul can be revealed.

leave one's shoes. From February through August of this year, the three teahouses—Ji-an ("House of Perception"), So-an ("House of Composition"), and Gyo-an ("House of Memories")—are traveling to museums and design centers throughout Germany as part of an exhibition called "Method Remembered: Toward a New Tea Room," where they will be presented with Uchida's new interpretation of tea accouterments.

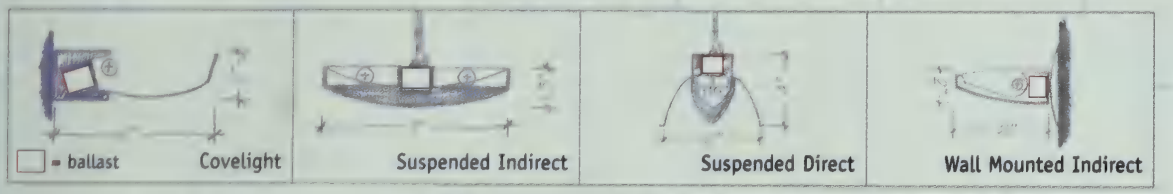
According to Uchida, what distinguishes Japanese from Western building is the notion of kekkai, or boundary, that subdivides a continuous space into small, sacred spaces by isolating and surrounding them. The three simple boxes—almost perfect seven foot cubes—are differentiated only by Uchida's treatment of the koshi, or lattice walls, which separate inside from out. Ji-an and So-an's koshi are elegant assemblages of squares and rectangles set in varying vertical and horizontal grids, while Gyo-an's koshi is a tangle of triangles. In all three cases, the effect is one of stunning simplicity, peace, and silence. Reducing the teahouse to its most basic form, Uchida presents complex concepts in an understandable way. "This work recalls the deeply rooted method culture of tea that modern society has lost track of; it recreates it for the next generation," he explains. "This is an attempt to translate the philosophy and principles of the tea ceremony so they can be understood from the perspective of the Western cultural experience."

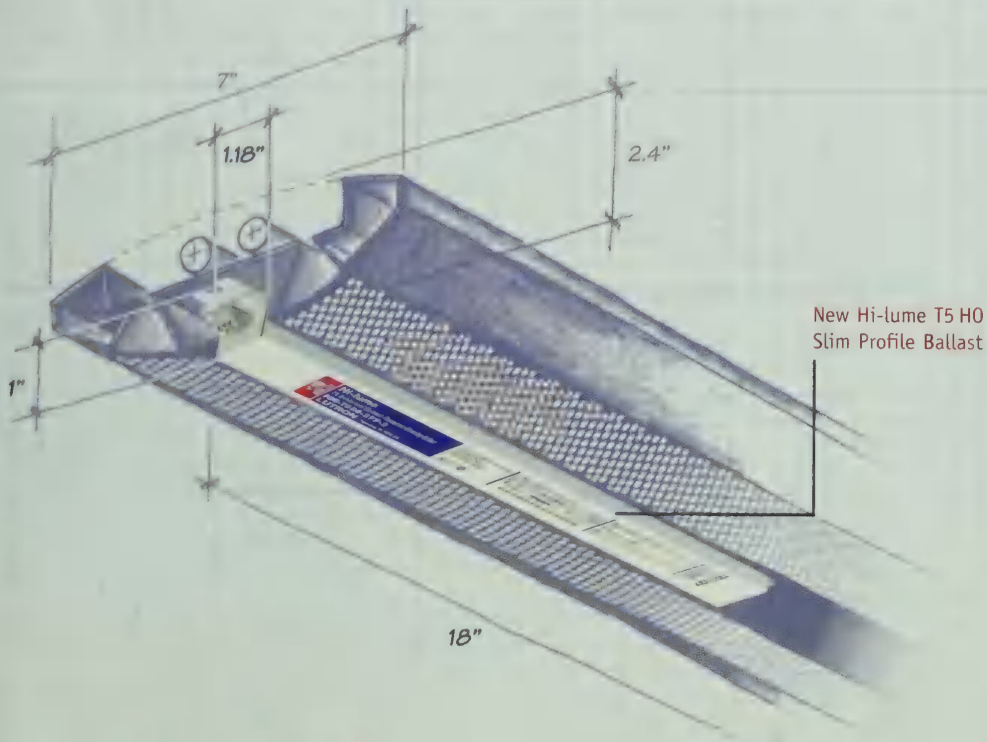
To accommodate the transient nature of contemporary life, the teahouses can be assembled, dismantled, and easily moved. And in the ultimate nod to modernity, the teahouses are available for purchase over the Internet (www.stilwerk.de) for $25,000 apiece. ■





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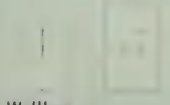




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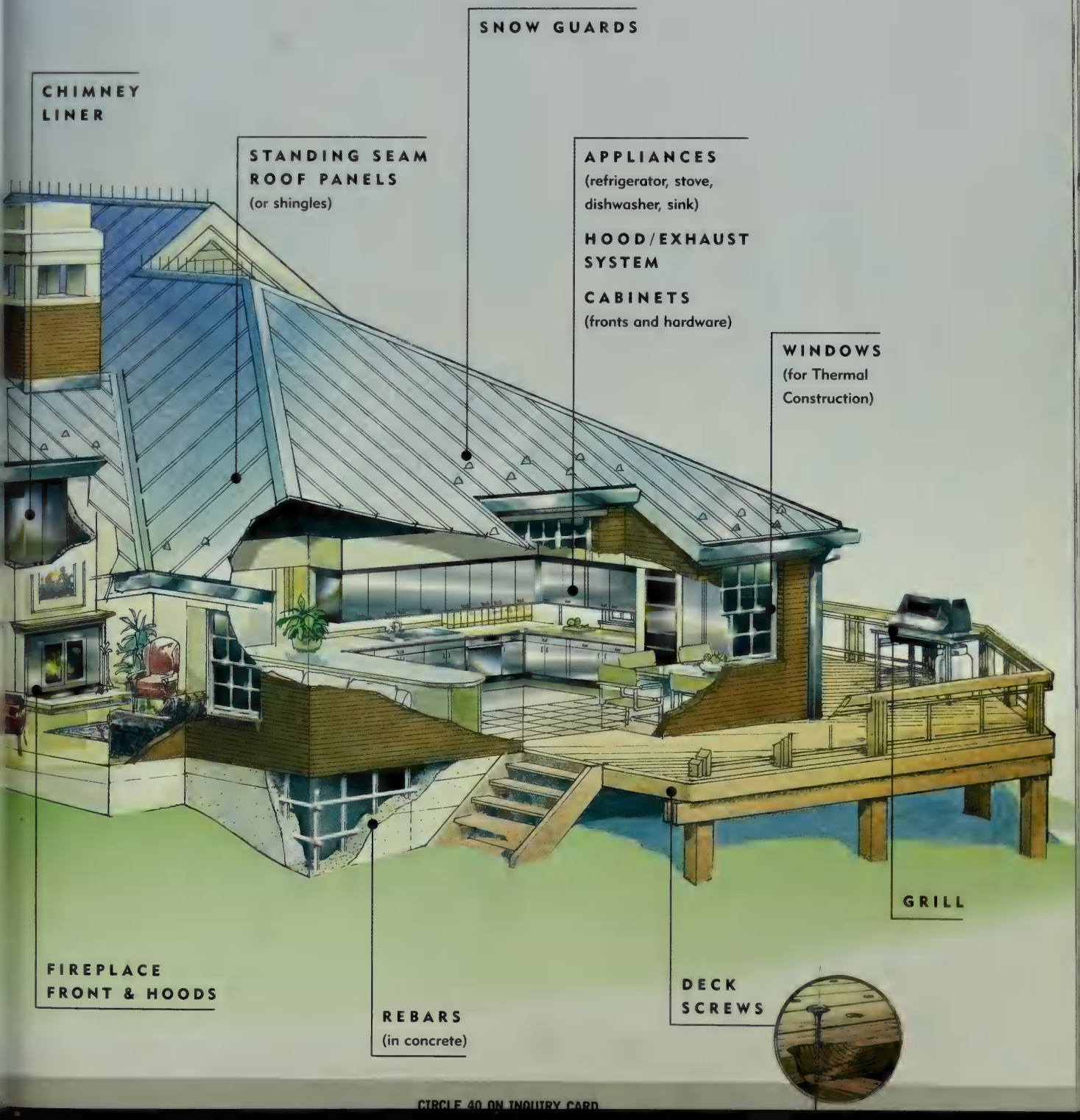
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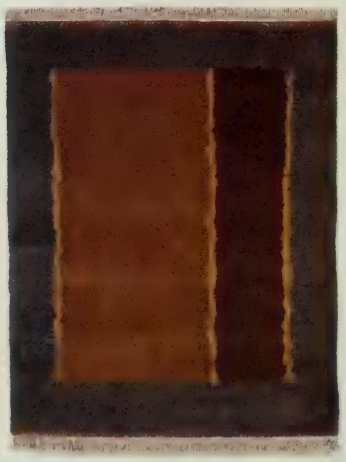
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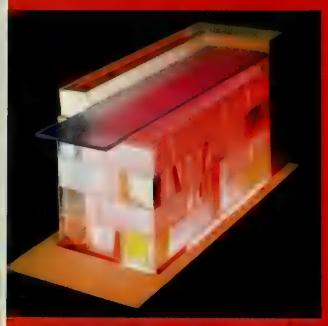
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FEATURES

Design Culture NOW

Like a potent cocktail, the Cooper-Hewitt National Design Museum's first National Design Triennial shakes together a lot of ingredients and delivers a pleasant kick. The result is a blurring, not of vision, but of boundaries, between the once-discrete disciplines of architecture, graphics, and product design. The Triennial, which runs from March 7 until August 8 at the Cooper-Hewitt in New York City, brings together work by 33 designers and firms, ranging from "deans" such as Frank O. Gehry and fashion designer Geoffrey Beene to "young turks" like architects Giuseppe Lignano and Ada Tolla and the firm LOT/EK and product designer Gary Shigeru Natsume. To highlight design crosscurrents, the exhibition's three curators, Donald Albrecht (architecture), Ellen Lupton (graphics), and Steven Skov Holt (products) organized the work into eight interdisciplinary "characteristics"—Fluid, Physical, Reclaimed, Local, Minimal, Narrative, Branded, and Unbelievable. A sampling is shown here. *Clifford A. Pearson*



1



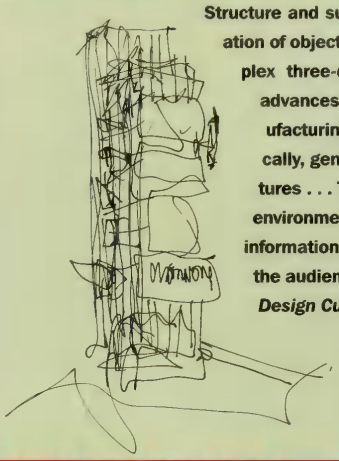
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3

1. Lapis Interface Boutique by Winka Dubbeldam. 2. poster by Alexander Gelman, and 3. Get Back motorcycle by Gary Shigeru

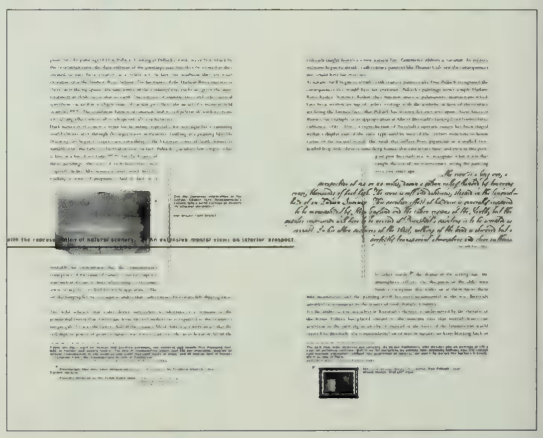
ARCHITECTURE



Structure and surface are merging in design today. The creation of objects, buildings, and interiors consisting of complex three-dimensional curves has been enabled by advances in computer-aided design, tooling, and manufacturing. Designers are conceiving of form organically, generating fluid surfaces in place of rigid structures . . . The designer has become an orchestrator of environments and experiences where materials, light, information, and imagery are in a state of flux, engaging the audience in active and intuitive ways.
Design Culture Now, Princeton Architectural Press

One Times Square (proposal)
Frank O. Gehry & Associates

GRAPHIC DESIGN

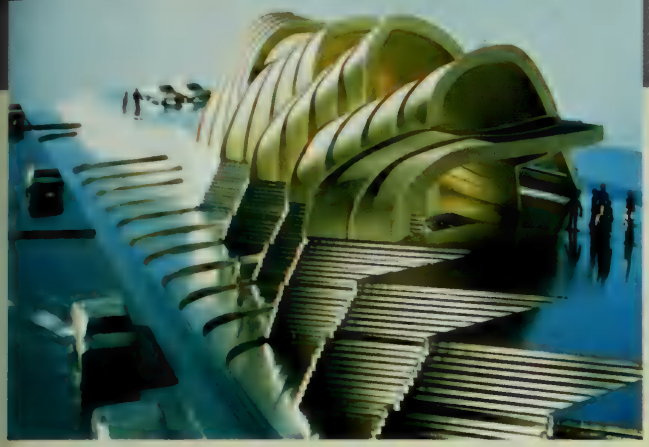


PRODUCT DESIGN

We are in the closing years of the Age of the Blobject, a period that began in the 1980s, when everything from the Ford Taurus to the Sony Walkman to the Tylenol caplet was designed with curved contours and swoopy silhouettes . . . Since then, blobjects, along with accepted standards for good design, have become more visually evolved. In the same way that the first generation of professional industrial design pioneers, in the 1930s, focused on streamlining objects, the designers represented [here] are hyperstreamlining everything from motorcycles and hairbrushes to sunglasses and computers.
Steven Skov Holt

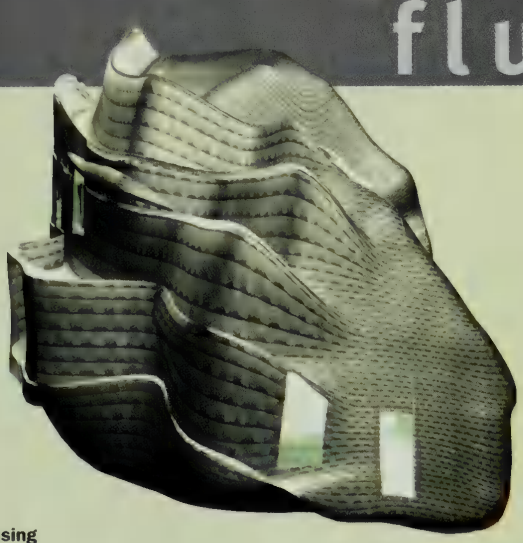


Swingline Contura stapler
Scott Wilson



Hydrogen House (unbuilt)
Greg Lynn FORM

fluid



Housing
Kolatan/MacDonald Studio

dity, saturation, and overflow are words that describe the information sur-
that besets us all the start of the 21 century. Images proliferate in this media-
environment, and so too does the written word. Far from diminishing in influ-
, text has continued to expand its power and pervasiveness. The visual
ession of language has grown increasingly diverse, as new fonts and formats
e to accommodate the relentless display of the word . . . Since its invention
g the Renaissance, typography has been animated by the conflict between
architectural elements—such as the page and its margins—and the fluid
tance of written words . . . As rigid formats become open and pliant, the
tectural hardware of typographic systems is melting down. ***Ellen Lupton***

Mythopoeia catalogue
ien Farrell, Slip Studios



Volgare typeface
Stephen Farrell, Slip Studios



Javad global positioning system
frogteam

Mars glasses
Colin Baden, Hans Moritz, Jim Jannard



Java Station network computer
Montgomery Pfeifer Design Team

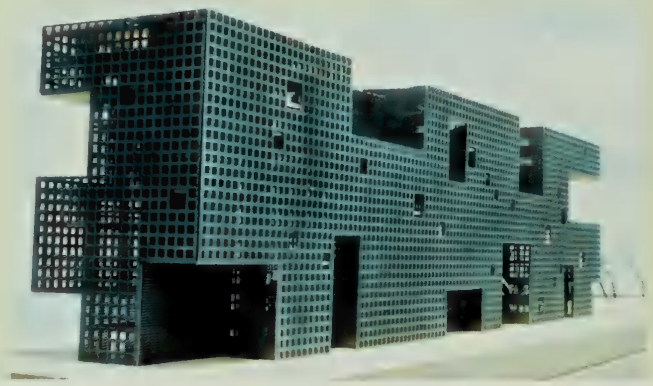


physical

ARCHITECTURE

The Triennial's participants rely on a range of strategies—from collage to mutation—for construction of [the] contemporary hybrid. In collage, discrete elements remain visually distinct. The juxtaposition and overlap of individual parts spur fresh insight. Mutations fuse discrete elements into new entities. In the process of becoming something else, forms meld to assume identities that bear few traces of their constituent parts. ***Donald Albrecht***

Designers engage the realm of physical experience by celebrating the play of light and shadow, juxtaposing diverse and sensual materials or reflecting on how an object, image, or building is made. ***Design Culture Now***



MIT Residence 2001
Steven Holl

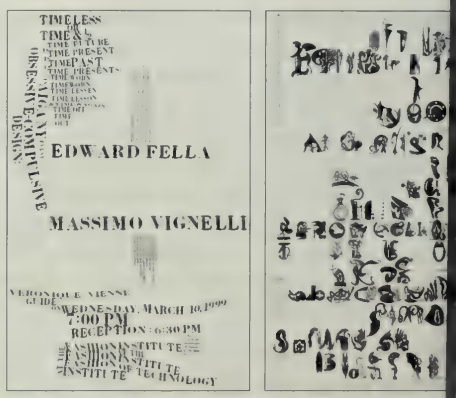


Museum of American Folk Art
Tod Williams and Billie Tsien

GRAPHIC DESIGN



Today, the simultaneity of diverse content streams is a given. Alongside the archetype of the printed page, the new digital archetype of the window has taken hold. The window is a scrolling surface of unlimited length, whose width adjusts at the will of reader or writer. In both print and digital media, graphic designers devise ways to navigate bodies of information by exploring the structural possibilities of pages and windows, boxes and frames, edges and margins.
Ellen Lupton



(Above) Mutilated Letters, *Speak* magazine
Martin Venezky, Appetite Engineers

(Right) Harold Budd CD package
Bruce Licher

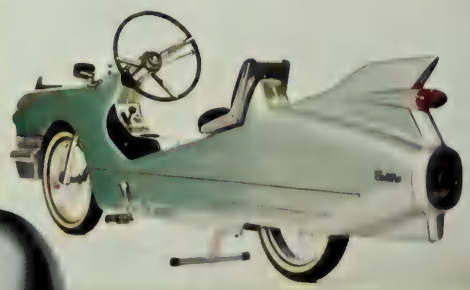


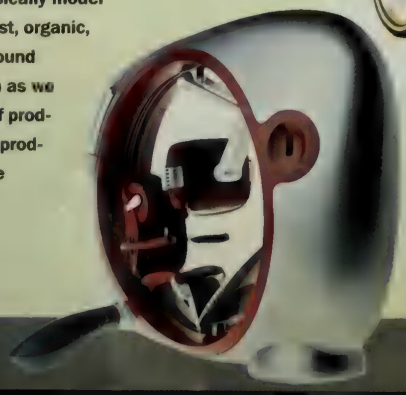
(Far right) Timeless or Time & 1/2, poster front and back
Edward Fella

PRODUCT DESIGN

Driven by the possibilities presented by the computer, designers are in a period of unprecedented opportunity . . . Materials and shapes that were inconceivable only a few years ago have become routine. Advances in tooling, manufacturing, and computer-aided software have given the designer new ways to create organic forms. Even those products that remain impossible to physically model can be virtually realized in the digital world . . . Everything looks fast, organic, and momentary. A new-found beauty is emerging. Even as we have become a culture of products, we have found that products no longer need to be physical.
Steven Skov Holt







(Far Left) Concept Shoe
Stephen Peart, Vent Design

(Left) Steelcase Q Concept
Martin Bone, IDEO

(Above) Cadillac Bike
Robert Egger

"Whew. All week, it's open me...close me...
plug things into me – cords, phone jacks, fiber optics.
But me and my buddies, we stay on top of things – not to mention under and around and...well, all over this building. See, we're a whole wire and cable infrastructure. We bring power and communications to about a thousand and one workstations on twenty-three different floors. And we're all designed to handle future technology changes. Heck, I even heard we'll be bringing fiber to the workstation soon! Yeah, it's tough work, but I'll tell you, there's nothing I'd rather be doing.
After all, how often do you get to be a part of something this big?"



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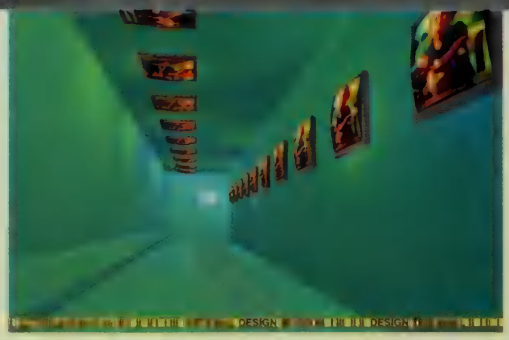
CIRCLE 03 ON INQUIRY CARD

reclaimed

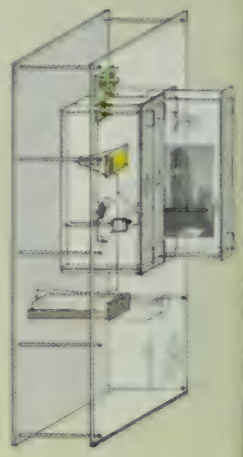
ARCHITECTURE

In a culture where images and materials are continually recycled, reused, and discarded, designers today often seek to reclaim abandoned places and products. Old forms receive new uses, and familiar icons and materials are mixed and recombined. Lost artifacts and obsolete media become part of the next generation's products or entertainment. As in hip-hop music, which uses a riff from an existing song as the foundation for a new tune, a sampled approach is influencing the design of objects, graphics, and interiors, where elements of one design become the genetic basis for new work. *Design Culture Now*

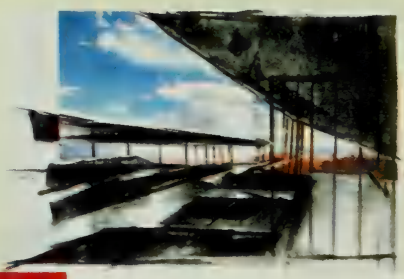
The hybrid approach [fuses] old and new, foreign and familiar, in the process helping people to see beauty in the everyday. *Donald Albrecht*



TV-Tank
Giuseppe Lignano and Ada Tolla, LOT/EK



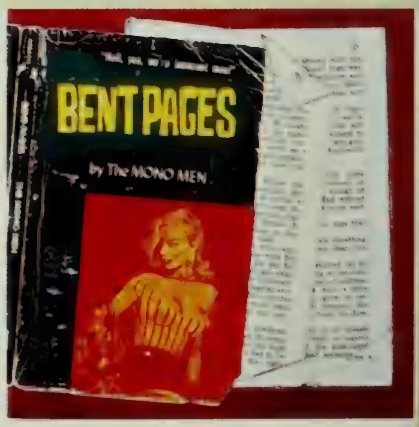
Mies-on-a-Beam installation
Lewis, Tsurumaki, Lewis Architects



Museum of the Earth
Weiss/Manfredi Architects

GRAPHIC DESIGN

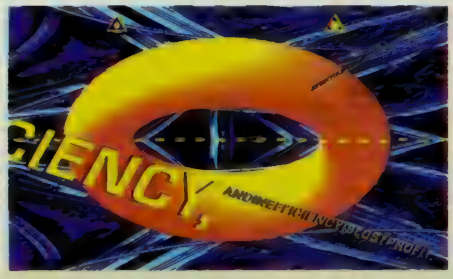
The alphabet is an ancient form that is deeply embedded in the mental hardware of readers. Graphic designers always ground their work, to some degree, in historic precedent, tapping the familiarity of existing symbols and styles even as they invent new idioms. While some designers pay their toll to history with reluctance, others dive eagerly into the reservoirs of pop culture. *Ellen Lupton*



Bent Pages record cover
Art Chantry

***Wired* Magazine: Pollution Is a Measure of Inefficiency**
Designer: Erik Adigard, M.A.D.

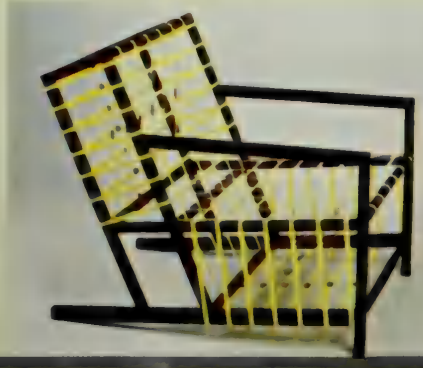




PRODUCT DESIGN

[A] focus on the narrative component of design has itself led to a search through both design history and material culture for elements of our physical vocabulary that can be called upon easily. Even as we have been bombarded by news, information, and an ascending cascade of consumer goods, we have seen a corresponding rise in our collective penchant for nostalgia. This has manifested itself in a surge of retro-futuristic designs that manage to look familiar at the same time they appear different. The exuberant forms of the 1950s, for example, have been mined for their symbolic riches. Time loops keep bringing back long-abandoned images, objects, and celebrities. *Steven Skov Holt*

Strap Furniture
Constantin and Laurene Leon Boym





Cloud 9 bathroom accessories
Constantin and Laurene Leon Boym

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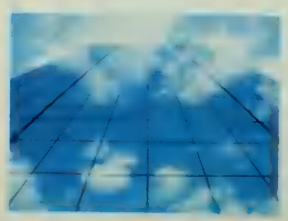


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local

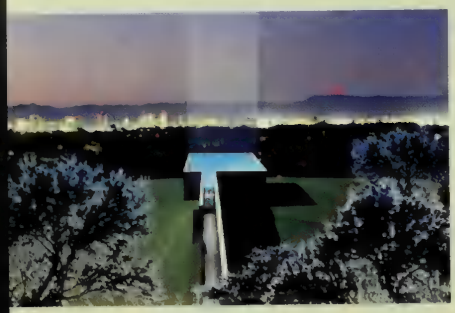
ARCHITECTURE

Many architects draw from local forms and materials, local building traditions, and the immediate conditions of a site. Other designers draw on social and cultural history and seek to incorporate the voices and experiences of lost or overlooked populations. Design is conceived in response to its cultural environment. In the fields of architecture and landscape architecture, a new model of design as an intervention within a specific context is replacing the ideal of the monument or freestanding object imposed upon a place.
Design Culture Now





House of Earth and Light:
McCue House
Marwan Al-Sayed Architects



Tocker/McCormack House:
Pool Pavilion
Wendell Burnette Architects



Bryant House
Samuel Mockbee and the Rural Studio of Auburn University

GRAPHIC DESIGN



Strands of History
Design Director: B.J. Krivanek
Environmental Designer: Joel Breaux
Landscape Architect: Joseph Yee

By integrating the written word into built environments Krivanek adds public and poetic dimensions to the flo commercial messages in the modern urban landscape Krivanek, founder of Community Architexts, a nonprofi organization based in Chicago and Los Angeles, create typographic interventions in response to the local con tions of a site—from its architectural features to the c munities that use it . . . Krivanek generates the narrati content of his projects from the history of a site and th outreach to community members. ***Strands of History*** is located at the new central administration complex o 23-campus California State University system in Long Beach (left). The project includes a timeline listing the social, economic, and commercial issues that have sh California culture, from theme parks to World War II in ment camps. ***Design Culture Now***

PRODUCT DESIGN

In the field of industrial design, devices such as walkie-talkies [and other wireless products] facilitate local communication, connecting people by condensing distances . . . [the] iDEN i1000 telephone (1998) is an all-purpose communications device that functions as a speakerphone, cell phone, pager, and two-way radio (right). It's no toy, a fact that becomes clear with one look at its compact, contoured body of molded polycarbonate (it weighs only 6 ounces). Building on the flip-phone concept that has been Motorola's hallmark, the i1000's see-through cover sits atop a gently curved row of raised oval keys. A paradigm for [illegible] devices, the i1000, though small, has pushed back against [illegible] miniaturization, achieving an optimal size and ergonomic [illegible] held device. ***Design Culture Now***



i1000 Wireless Digital Communicator
Scott Richards and Craig F. Siddoway

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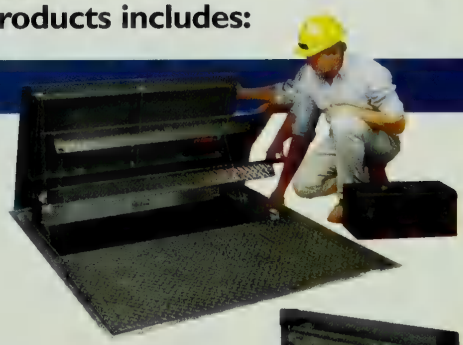
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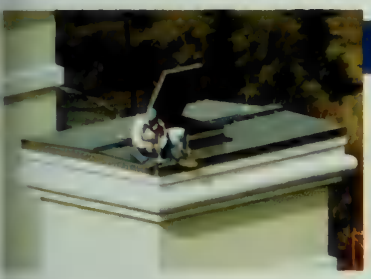
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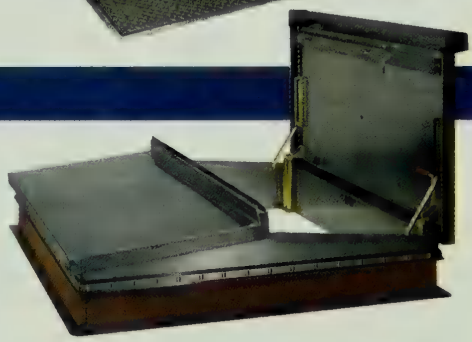
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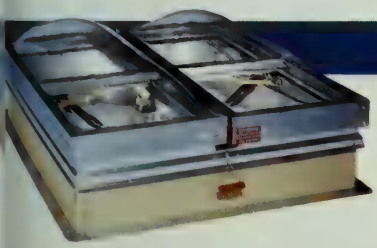




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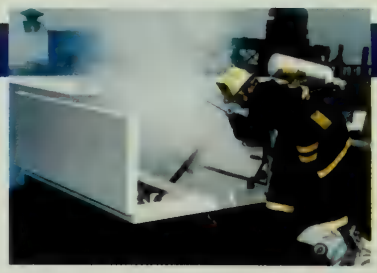
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Residential structures spiking the urban skyline

By Akiko Busch

There is something about urban rooftops that invites innovation. The structures traditionally residing there—mechanical sheds, water tanks, and elevator housings—have a stark utilitarianism. At the same time, their forms tend towards eccentricity: Cylindrical water vats on stilts, utility sheds, bulkheads, and pyramidal skylights all contribute to the sculpture of the urban skyline.

Commerce has long recognized the advantages of the view upwards—witness New York City's giant Maxwell Coffee Cup, for years tipping over the banks of the Hudson River, or the Winston billboard that once adorned a New York skyscraper, with cigarettes emerging from a pack to fit the building setbacks. Add a battalion of terra cotta gargoyles, cupids, knights, and phoenixes, and clearly this becomes a landscape of happy incongruity.

That quality has been celebrated by many architects who view the rooftop as a building site. The ad hoc shacks, sheds, and greenhouses that sprouted there in the '60s and '70s resembled a skyline shantytown. With little formal architectural intervention, such pop-ups and add-ons recall the New England barns that grew improvisationally with changing needs. But as the availability of urban real estate diminishes, the rooftop has emerged as an increasingly valuable lot. Sheet metal, tar paper, and cedar or redwood watertanks now abut such materials as rubber playground tiles and frosted glass.



Siris/Coombs Architects' penthouse addition to William Randolph Hearst's palatial Manhattan apartment.

As preservation, zoning, and community boards exert more control over rooftop sites, many aeries have risen to the occasion. While some recent additions tend to be restrained and contextual, others seem more contrary. Some are follies or pastiches, taking cues from non-urban building traditions—miniature farmhouses and barns, Shingle-style cottages, suburban ranch houses, and rustic log cabins—or even ancient [illegible] servatories and clean-lined International Style pavilions [illegible] skyline, as do exotic structures that seem to turn ordinary [illegible] landing strips for interplanetary travel. As these examples con[illegible] paradise right smack dab in the middle of town. ■

[illegible] writes about architecture and design for such House & Garden.



PHOTOGRAPHY: © PAUL WARCHOL (OPPOSITE); SIRIS/COOMBS ARCHITECTS (INSET, LEFT)



A COPPER-CLAD TURRET BECOMES A LOFTY LIBRARY

Architect Lee Harris Pomeroy turned an empty, copper-clad turret, punctuating the mansard roof of a turn-of-the-century Manhattan apartment building, into a secluded, two-story "scholar's library" for an adjacent apartment.

A steel staircase, following the turret's cylindrical form, connects the two levels of this rooftop retreat. Built-in bookshelves conform to the curving walls, as well. Existing round apertures, like portholes, capture Central Park views. In fine weather, the scholar's studies can extend onto the reading terrace.

Project: *Scholar's Library, New York City.*
Architect: *Lee Harris Pomeroy Associates/Architects*





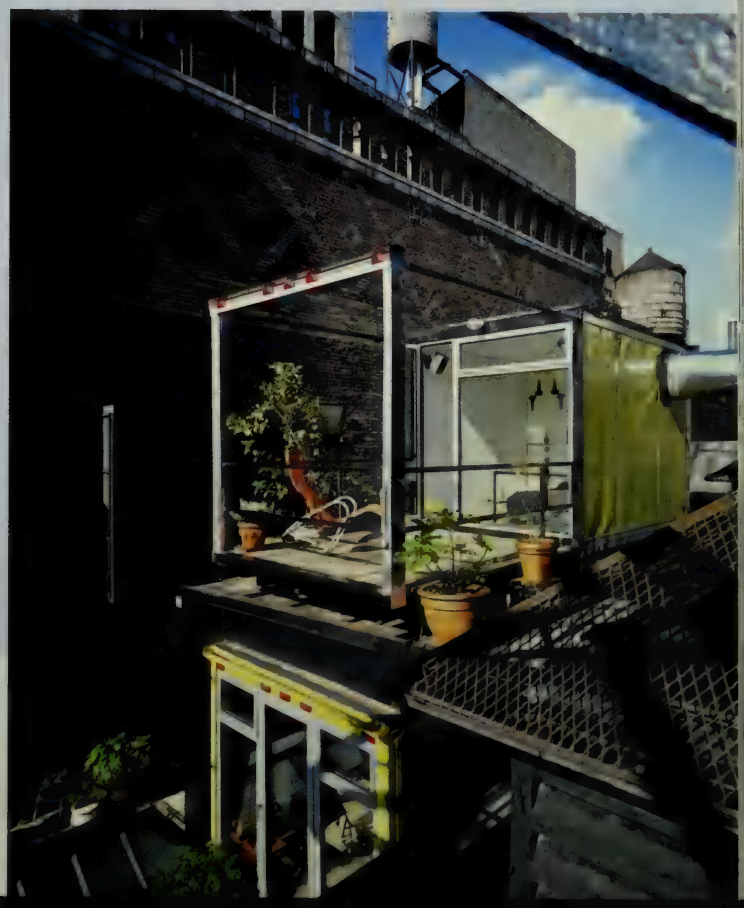
A RESURRECTED TRUCK TRAILER CROWNS A MANHATTAN HIGH-RISE

Eccentricity and pragmatism intersect regularly on rooftops. In this case, LOT/EK partners Ada Tolland and Giuseppe Lignano perpetuate the traditional notion of the rooftop as a utilitarian landscape—but with an ironic twist: Here, in midtown Manhattan, they installed a metal truck container box, raised 11 stories above street level. The architects reconfigured an 1,100-square-foot mechanical shed to create a living room, kitchen, and bath. Positioned on top of the shed, the container provides the framework for a 90-square-foot bedroom and small patio. Just behind this two-story structure rises the great vertical shaft of the Empire State Building.

Project: *Guzman Penthouse, New York City*
Architect: *LOT/EK*









A TRELLIS LEADS TO A CUPOLA WITH VIEWS

The wood, metal, and glass cube, designed by Culver City, Calif., architect Lorcan O'Herlihy for a rooftop in nearby Marina Del Rey (above), looks toward the sea on one side, and a cityscape on another. Reiterating the clear horizon lines around it, the cube's crisp geometry defines a detached office pavilion for a duplex in a four-story, wood-frame condominium built in 1974. The addition's vertical strips of clear and translucent glass playfully modulate daylight filtering into the space. A trellis of Douglas fir, casting rhythmic shadows, leads across the roof terrace from a penthouse bedroom to this cupola-like home office with expansive views.

Project: *Kelly Residence, Marina Del Rey, Calif.*
Architects: *Lorcan O'Herlihy Architects*

AN ANGULAR BULKHEAD POINTS SKYWARD

Clad in copper with mahogany framing, this aerie (below) by New York architects Sage Wimer Coombe provides roof access from a Tribeca loft. Because the building stands in a landmarked district, New York City building code mandated that any rooftop building be hidden from the street, a condition met by the extreme angularity of the butterfly roofline. Rubber playground tiles pave the surrounding deck.

Project: *Stair Pavilion, New York City*
Architects: *Sage Wimer Coombe*

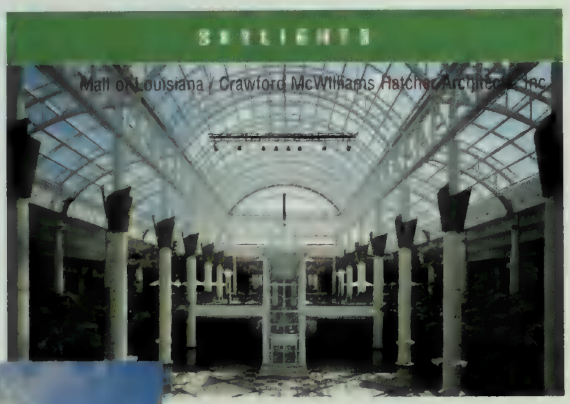




A SKYLINE BRISTLING WITH ECLECTIC MINIATURES: In the lower Manhattan neighborhood of Tribeca, with recently soaring real-estate values, property owners push skyward for more space—and sometimes even "mine" their rooftops for "gold." The result: a rich array of tiny residential structures, including faux renditions of farm houses and a Dutch-gabled cottage, as documented here by John Petrarca, a local architect and author of the forthcoming book *Hidden Tribeca*.

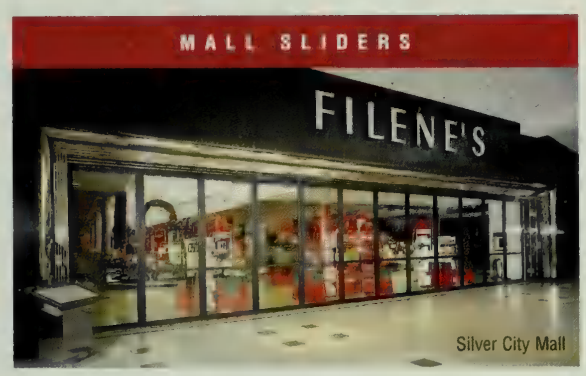
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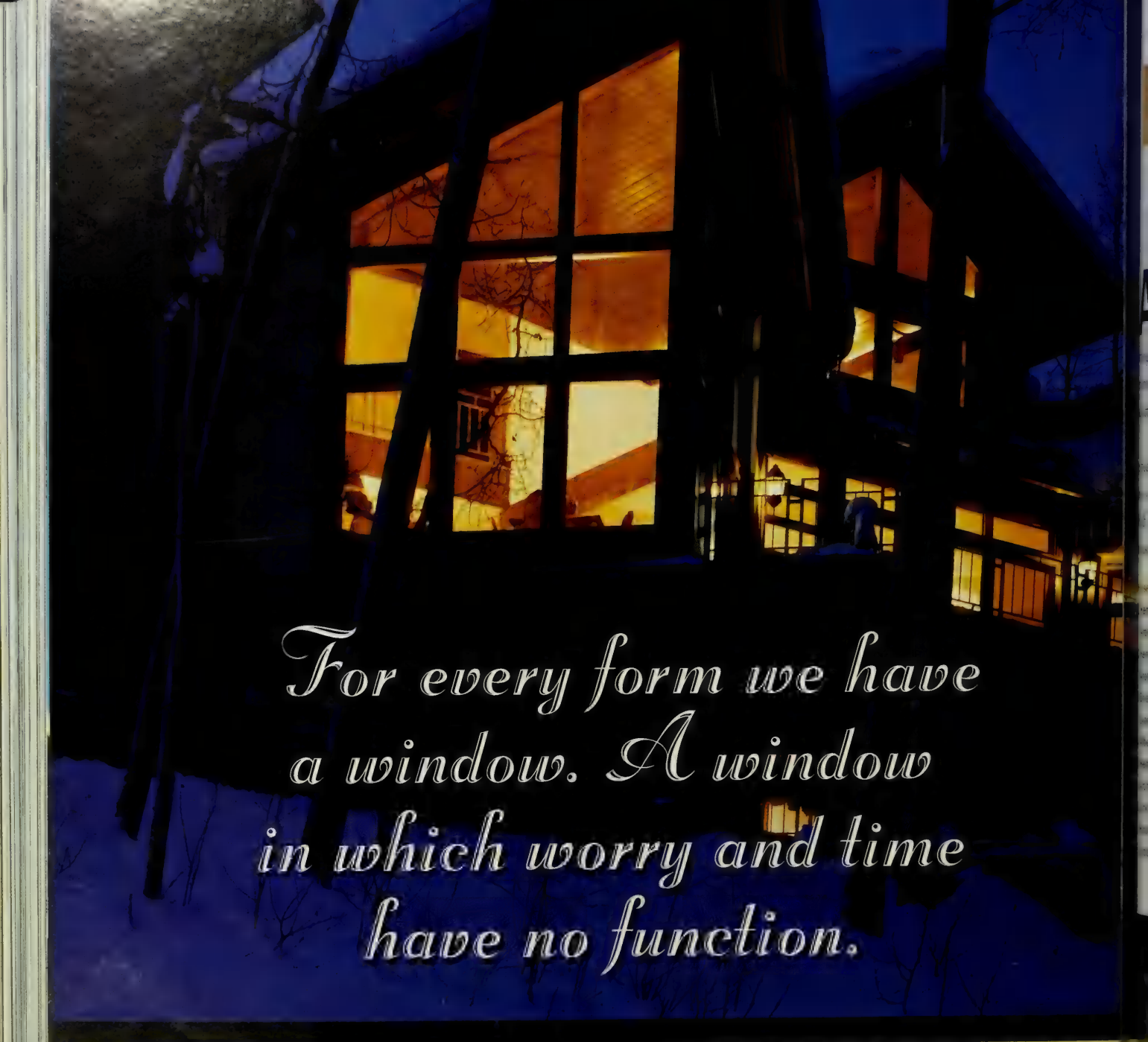
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Record Houses 2000

A streak of dynamism runs through RECORD HOUSES 2000. Whether with the sweep of a great curve, an implied slippage of planes, a fluid interweaving of form, or a seemingly precarious siting on a steep or rocky perch, the buildings all evoke and inspire movement. We discovered this quality in many projects throughout the selection process—clearly reflecting the spirit of the age.

Other aspects of RECORD HOUSES 2000 also transcended our expectations. In this millennial year, our pursuit of essential and innovative work took us into the global realm, even more than we'd anticipated. With exceptional projects coming to us from near and far, we decided to focus on outstanding houses wherever they might be: from the outskirts of Boston and Phoenix to the hinterlands of Fukuoka, Japan, and Espoo, Finland.

Houses by:

1. **Kennedy & Violich Architecture**
2. **Ken Shuttleworth Architect**
3. **Brian MacKay-Lyons**
4. **Alberto Kalach**
5. **Wendell Burnette Architects**
6. **Jyrki Tasa**
7. **Hiroyuki Arima + Urban Fourth**

Our final selection brings together an eclectic mix of well-executed buildings, from the exotic or unusual to the quintessentially familiar. In form, materials, character, siting—and the very concept of home—these projects are remarkably varied. Each has a distinct personality. While Alberto Kalach's GGG House in Mexico City, for example, offers a complex journey through interlocking planes of cast concrete, Ken Shuttleworth's Crescent House in Wiltshire, England, presents a sleek minimalist composition of smooth, white arcing walls.

In many of the projects, absolutely ordinary materials become rich and evocative, as in Jyrki Tasa's House Into in Espoo, Finland, where plywood and steel cables shape an extraordinary spiraling stair, or in Wendell Burnette's Schall Residence in Phoenix, where concrete blocks are transformed into a curving, almost billowing, wall.

Rethinking the conventions of domesticity, the Boston firm of Kennedy & Violich took a liberal and pluralistic approach to program, creating a house addition with a swimming pool flowing through its living room-*cum*-art gallery. Also merging daily life with art, Japanese architect Hiroyuki Arima designed a building that combines an atelier and gallery with living quarters for an artist-in-residence.

The projects all speak of the places where they stand. Arima's chimerical building sparks the imagination with a surreal sensibility that seems distinctly Japanese. Abstractly sculptural, this diminutive structure has a "levitated" exterior stair that hovers, barely touching ground, while Wendell Burnette's Schall Residence, with parched materials and deep, shaded oases, clearly emerged from its surroundings in the Arizona desert.

With structures small and large, budgets ranging from tight to lavish, and dramatically contrasting sites, we offer RECORD HOUSES 2000 as a panorama of the architectural landscape. *Sarah Amelar*





An indoor pool (opposite) juts out past the shell of the house on the north side (above and below center). The main entry is on the east side (below) with the old house behind.



On a wooded site outside of Boston, **Kennedy & Violich** creates a house where boundaries disappear, and the architecture flows.



By Clifford A. Pearson

Why can't the swimming pool be in the living room? Why does the exercise room have to be separated from the art collection? Asking such questions, the clients for a house and private art gallery northwest of Boston challenged their architects, Sheila Kennedy, AIA, and Frano Violich, AIA, to create a place where traditional boundaries disappear. In the spaces they designed, lines of separation are transparent or just slide away.

This is hardly your typical American home, but it reflects changes in many people's lifestyles. Once a retreat from the workplace and the strenuous life, the contemporary house is now invaded by the home office and do-it-yourself health-club. Say goodbye to stone hearths and wood-paneled dens. Hello to computer stations, fax hookups, and indoor swimming pools. The Massachusetts couple who hired the Boston architects to design an addition to their 3,000-square-foot, gable-roofed house from the 1970s realized their spatial needs were expanding even though the kids had grown up and moved out. Deepening interests in art collecting, ethnomusicology, and sculpture making meant their nest was anything but empty.

The clients told the architects they didn't want to compartmentalize their lives. For them, work, play, relaxation, and entertaining overlap. Everything is fluid. By integrating the house's varied functions, they hoped to prevent it from "looking like a museum or feeling like a gym," says the wife. This was no easy task, considering that a 48-foot-long swimming pool, a dance/workout studio, a generous office for the husband, and a large living room had to fit into a 3,300-square-foot addition.

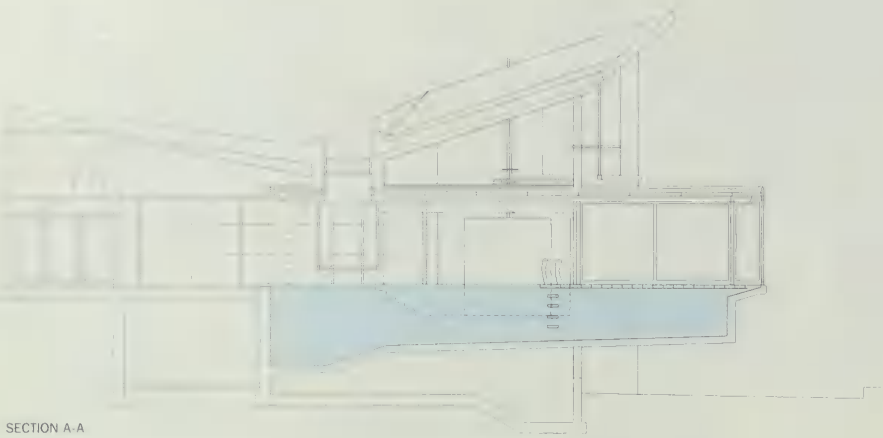
"We kept struggling with gallery and pool, gallery and pool," recalls Violich. "Each one ate up so much space." Things finally fell into place when the architects realized their design must be as fluid as their clients' lives. They encased the pool in sliding glass panels and cantilevered a third of it beyond the building envelope, so it seems to float between indoors and out. They designed a roof for the addition as if it were a piece of origami unfolding in six sections—an ingenious solution that opens up for a mezzanine office and double-height living room while providing more intimate spaces for dining and exercise.

Even part of the house's structure seems to float. At the juncture of the roof's six folds—where one would expect to find a column or some kind of support—the architects placed a void, a chimneylike lightwell that descends as a frosted-glass cube hovering a couple of feet above the swimming pool. Instead of resting on one key member, the weight of the roof is transferred to the steel frame over the pool. The house seems in motion, wrapping around two courtyards—one off the kitchen and the other on the west side with views of nearby woods.

To protect the clients' collection of prints and paintings, Kennedy & Violich brought in sunlight mostly through clerestories, so it doesn't hit artwork directly. Where windows extend toward the floor, as they do on the west facade, the architects used fritted glass at eye level, to protect art from ultraviolet rays, and clear glass below.

Getting the infrastructure to work was critical to the success of

Project: *Residence and Gallery for Contemporary Art, Western Massachusetts*
Architect: *Kennedy & Violich Architecture—Sheila Kennedy, AIA, Frano Violich, AIA, principals; Markus Froehlin, project architect; Craig Mutter, project designer; Bhupesh Patel, Scott Murray, Eduardo Sucre, assistants; Tarik Oualalou, presentation drawings*
Engineers: *Sarkis Zerounian and Associates (structural); Ibrahim & Ibrahim Engineers (mechanical)*
Landscape Architect: *Stephen Stimson Landscape Architect*
General Contractor: *Kistler & Knapp Builders, Inc.*



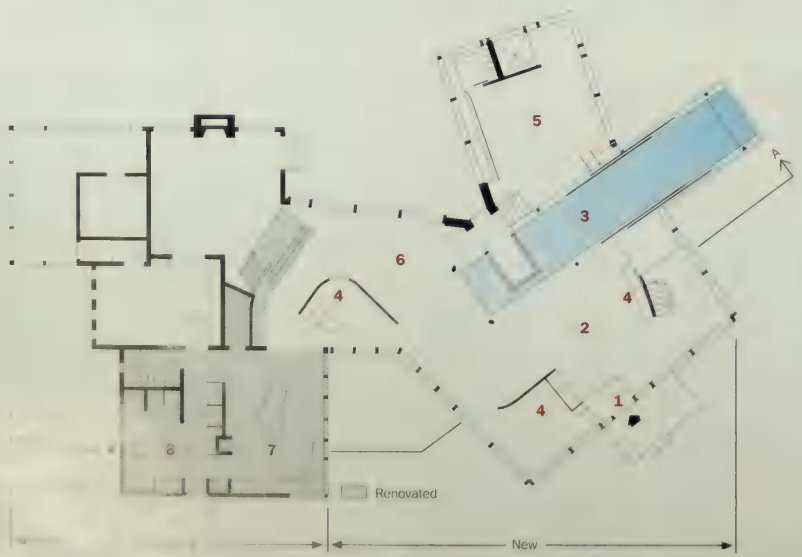
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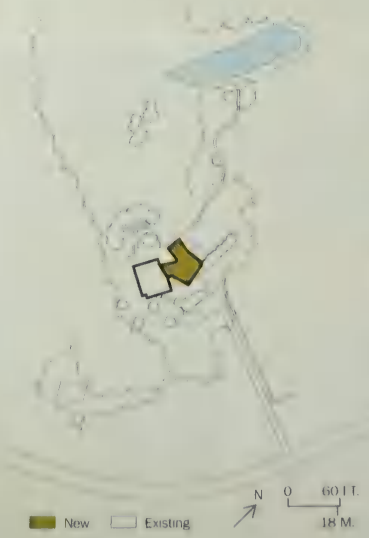
The steel frame surrounding the pool (opposite) holds a plenum with mechanical equipment and transfers the structural load of the roof to the floor. Pool water is disinfected with odorless ozone so the house doesn't smell of chlorine. A "near furniture" piece in front of the stair (opposite top) is a hybrid element that provides a wall surface for artwork and space for books, while also defining specific areas within the living room.



SECOND FLOOR

1. *Entry*
2. *Living*
3. *Pool*
4. *"Near furniture"*
5. *Dance/work out*
6. *Dining*
7. *Kitchen*
8. *Office*
9. *Bedroom*













the project. Dehumidifiers are tucked into a ceiling plenum above the pool to keep moisture away from artwork, while forced-air handling ducts are set within thick walls below clerestory glazing. "By making some things 'thick,' we could get other things—like interior partitions and the plywood floor—to be 'thin,'" explains Kennedy. "In the past, we had exposed infrastructure, but here we embedded it in the architecture."

Made of three-quarter-inch layers of fir plywood, the house's thin elements are hybrids of architecture, infrastructure, and furniture. A curving and sloping plywood floor, for example, starts as a bridge over the pool, then turns into a ramp to the mezzanine office and ultimately a work surface for computer and books. Resting on steel beams with no joists, the elegantly morphing plywood construction looks like a sensuous piece of sculpture, especially when seen from the living room below. The [illegible] elements, which the architects call "near furniture," combine [illegible] hanging artwork with cabinet spaces for storage and help [illegible] areas within the flowing plan.

[illegible] existing house was kept mostly intact, its north face [illegible] its living areas open directly onto the addition. Exposed steel columns and beams provide a contemporary threshold between old and new. Visitors now enter through the new structure, which is clad in zinc on three sides and vertical cedar boards on its south facade. Treating the old building as a discrete object within the overall composition, the architects retained its original cedar siding, now painted teal.

Instead of orchestrating a procession of rooms or experiences, Kennedy & Violich created an integrated environment. This is an architecture of multiplicity, in which borders disappear and functions change with the sliding of a glass panel or the sloping of a floor plane. ■

Sources

Zinc roofing and siding: *Cominco*
Aluminum windows: *Efco*
Swimming pool: *Jackson Pools*
Glass pool doors : *Temp Glass*
Mosaic glass pool tiles: *Dal-Tile (Mosaicos Venecianos de Mexico)*
Quartz halogen uplights: *Rambusch*
Burnished concrete floors: *D & M Concrete*
Poured concrete: *Gordon Richards*

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Maple hardwood laid over plywood forms a bridge over the pool and then morphs into both floor and work surface for the upper-level office (this page and opposite). The ceiling is painted a curry color, says Kennedy, selected because it is "mobile" or changes with the light.



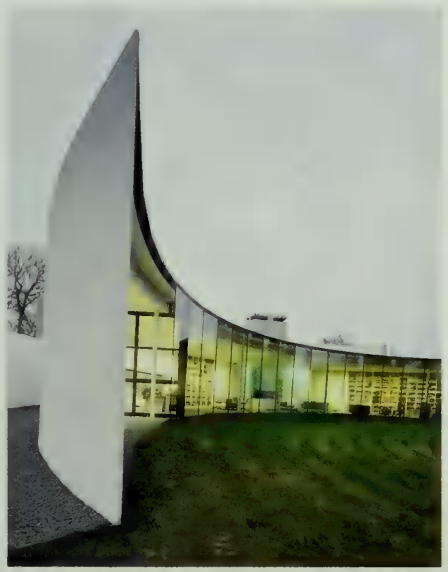
The 79-foot-long glazed wall of the crescent-shaped living, dining, and play areas (below) faces south and southeast. The double crescents (opposite) stand out as cleanly formed white shards rimming a landscape of overlapping circles.

Not far from Stonehenge, the sleek white **CRESCENT HOUSE** by Ken **Shuttleworth** retraces patterns of millennia-old monuments.



By Suzanne Stephens

Seen from afar at dusk on a winter's day, the Crescent House in Wiltshire, England, shimmers through a veil of leafless trees. Its expansive, concave, glass wall affords brief glimpses of well-lighted living spaces within. But you must approach the 4,000-square-foot house from the rear, where a solid, curved, white wall dominates the visual field, glowing eerily in the crepuscular light. The driveway follows that curve to one end, where the entrance is quietly recessed between two crescents. Here, a 10-foot-wide aluminum door slowly pivots open, and the owner and architect of the house, Ken Shuttleworth, his wife Seana, and their two children greet you as you step into a dramatic 16-foot-high hallway.



Following the arc of the hall (which doubles as a gallery for displaying the children's art), the smooth white wall on the right breaks about midway along the path. At this point, you turn and find yourself propelled into the extraordinary 118-foot-long sweep of the inner crescent's continuous living, cooking, dining, and play areas. Bound by a 79-foot-long, concave, mullionless facade of flat glass panels, this "garden room," wraps around a grassy lawn. A fire in the large concrete fireplace, embedded in the gallery wall of the outer crescent, warms the living and dining areas, and marks the de facto center of the house.

"I began with plates and teacups, then went to a compass, and finally a computer," says Shuttleworth matter-of-factly about his design process, as if this were *de rigueur*. He designed the inner and outer crescents with different widths, like phases of the moon, and placed them in an almost parallel alignment, shifted ever so slightly. While the inner crescent, with its glazed concave wall, is essentially one large room, the outer crescent, whose exterior wall presents itself so opaquely to the entrance drive, contains the bedrooms and baths. The rooms are small, spare, and windowless, except for narrow skylights against the rear wall. But there is a payoff: "You can lie in bed at night," says Shuttleworth, "and see the stars and moon overhead."

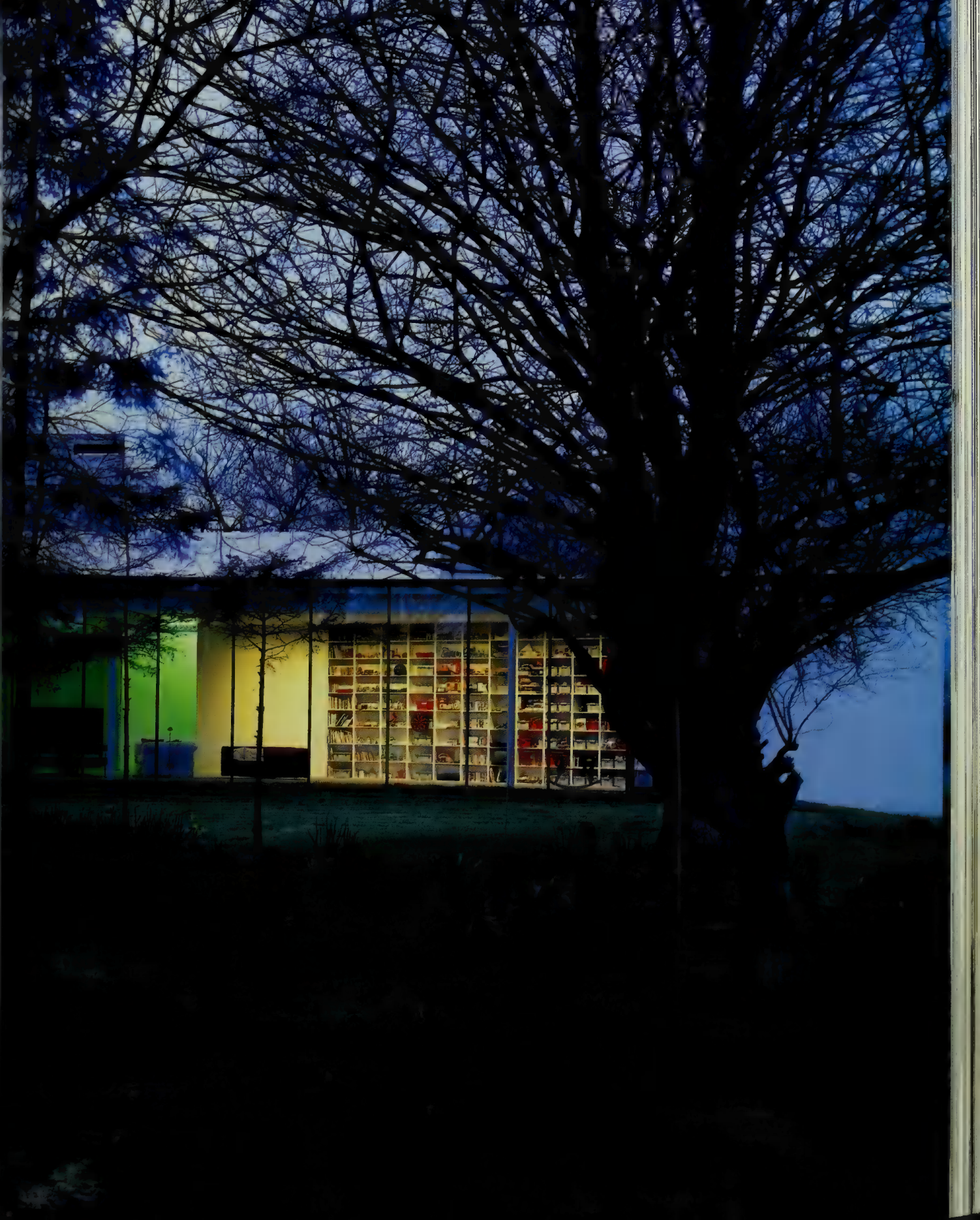
You don't have to look far for the inspiration for the weekend house that Shuttleworth, a principal in the firm of Foster and Partners in London, designed for himself and his family. The Crescent House recalls the circular sarsen (local sandstone) formations belonging to the sacred neolithic monuments of Stonehenge and Avebury nearby, and echoes the patterns of the mysterious circular ditches and causeways created long ago by Avebury's inhabitants.

But, this is the 21st century: Other aspects of the landscape also determined the design decisions. The five-acre site that Shuttleworth found at the edge of Marlborough Downs is across the road from a recycling operation and rubbish dump and close to a housing cluster. With a semicircular house, the architect could essentially turn its long back on what he wanted to blot out, gaining privacy for his family, and protecting the building from stormy, gusty west winds. Since a concrete plant is located up the road, Shuttleworth used this local resource, forming radial fin walls and slabs from concrete, supplemented with masonry-block infill.

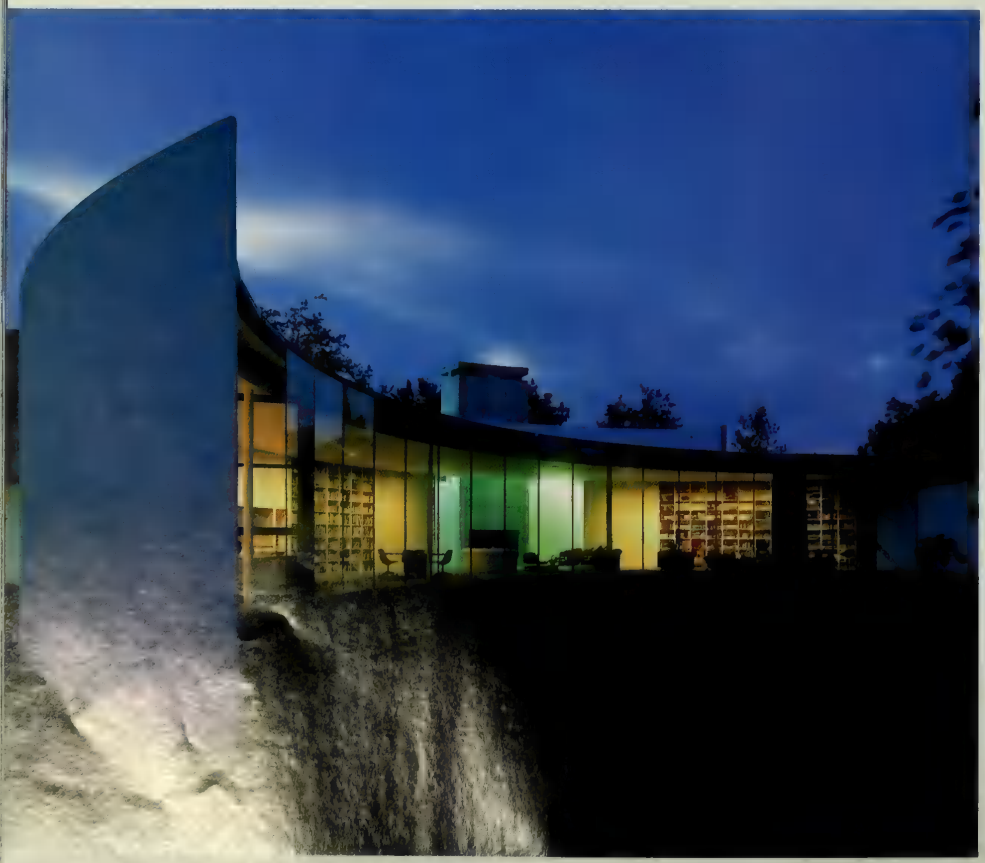
Project: *Crescent House, Marlborough Downs, Wilts England.*
Owner: *Ken and Seana Shuttleworth*
Architect: *Ken Shuttleworth*
Engineers: *Tony Fitzpatrick and Adrian Faulkner (Ove Arup and Partners)*
Consultants: *Claude Engle (lighting); Roger Preston and Partners (mechanical and electrical)—Trevor Farnfield, Kevin Reed and Chris Munn; Davis Langdon and Everest (quantity surveyors)—Paul Morrell and Erland Rendell*



Glimpses of living spaces appear through a swath of trees cutting across the garden. Doors at either end of the house allow direct access to the lawn.

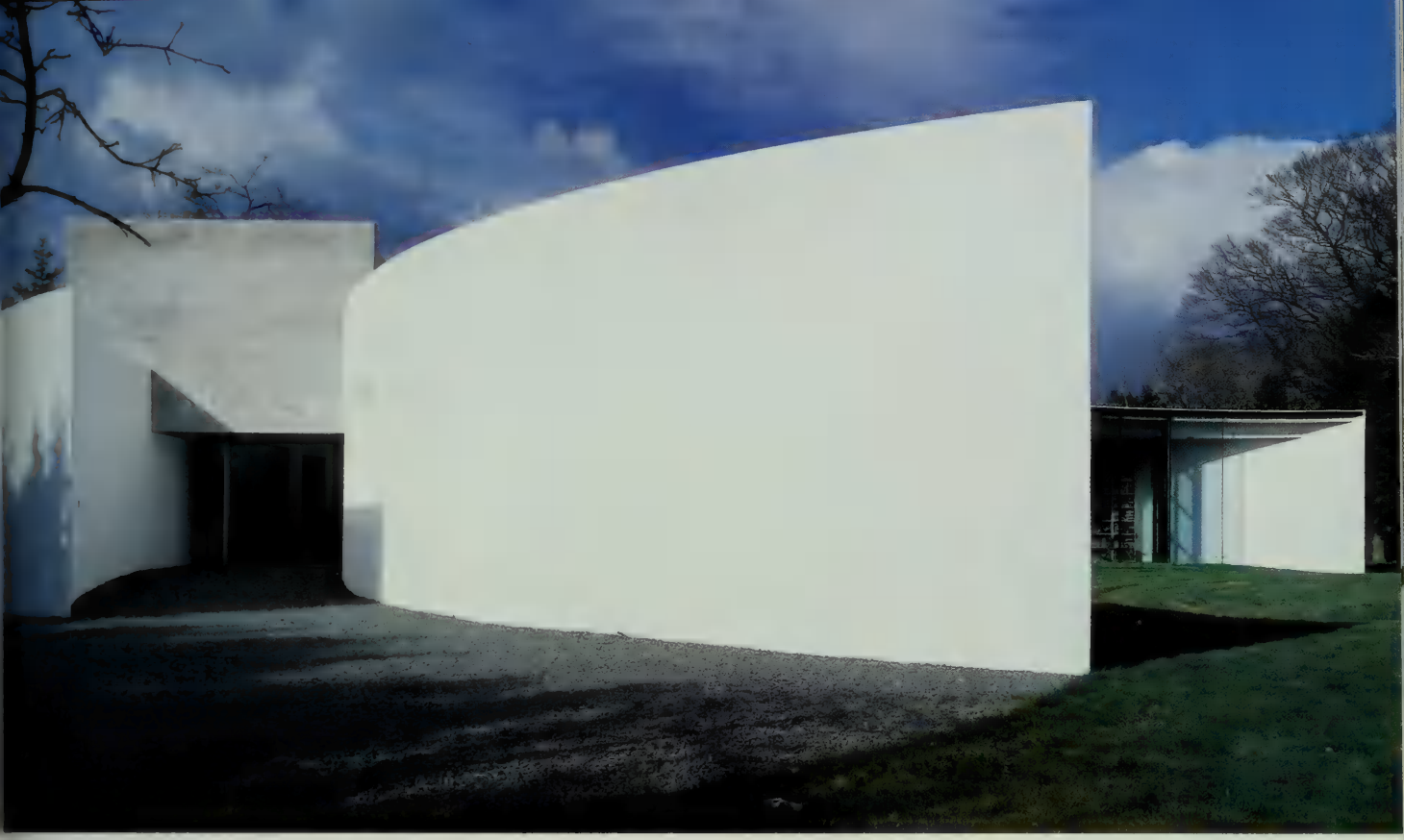




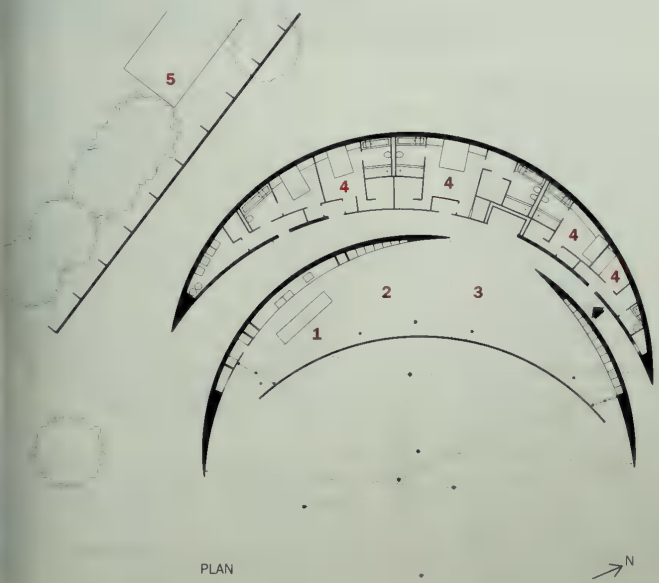




1. *Kitchen*
2. *Dining*
3. *Living*
4. *Bedroom*
5. *Garden storage*



Butt-edged glass panels (opposite), cantilevered from bolts at the base of the curtain wall, rise to 13 feet. The living room itself and its Lally columns are 11 feet high. The main entrance is through a 10-foot-wide door under a concrete shear wall that doubles as a lintel; the rear (below) is windowless with white EIFS coating the concrete-and-masonry structure. The plan (left, below), shows plot lines for the radii of the various arcs.



PLAN







The landscape design completes the circular pattern implied by the house plan, for the inner crescent's glazed wall embraces a round lawn, 105 feet in diameter, that is clipped in a pattern of concentric rings. ("How else could we mow it?" asks Seana Shuttleworth.) These circles overlap a larger hay-and-wildflower meadow, 328 feet in diameter, which in turn is bound by Shuttleworth's newly planted forest of 1,000 deciduous trees.

The overall scheme pays another homage—this time closer to the present—to the solar hemicycle houses that Frank Lloyd Wright designed between 1944 and 1959, particularly his two-story house for Herbert Jacobs in Middleton, Wisconsin (the second one for this client), and the one-story Cooke House in Virginia Beach. Although Wright did not give his earlier residences discrete semicircular forms, he oriented their concave window walls to the sun's angles, and had them wrap around interior gardens. In Shuttleworth's solution, the concave glass wall faces south and southeast, so that the public living spaces receive ample morning light.

During the hottest part of a summer day, the house is shielded by the adjacent trees, and west light is diffused through the entry gallery's clerestory windows. Thick concrete and masonry walls prevent temperature changes in the house from fluctuating too much during summer and winter. The interior benefits from cross ventilation; and in warm weather, the chimney acts as a passive ventilation stack.

THE HOUSE EVOKES NEARBY NEOLITHIC MONUMENTS AND THE SOLAR HEMICYCLE HOUSES OF FRANK LLOYD WRIGHT.

In some respects, the Crescent House's pure white shapes and precise machine-like detailing bring to mind Le Corbusier's houses of the 1920s and '30s. The relationship to the earth, however, is different. Le Corbusier's houses, lifted on piloti, stand apart from their natural settings. The Crescent House, with its incised footprint, sits on the land lightly and gingerly, inextricably connected to it through circular motifs. In this manner, it is midway between Wright's organicism, with his nubbly materials, earth berms, and rectilinear extensions, and Le Corbusier's isolated objects-in-space. As such, the design continues an idea seen in Foster and Partners' 1991 wing—a curved, glazed, and bermed addition—for its Sainsbury Center for Visual Arts at the University of East Anglia.

Although Shuttleworth's double crescents raise the question of whether function is being stuffed uncomfortably into the fragments of a circle, the forms apparently do not pose such problems for the inhabitants. (It helps, of course, that the architect and clients are so close, and the children tidy and well-behaved.) Though strongly formalistic, Crescent House seems to demand no undue sacrifices in the realm of practicality. Moreover, everyday life here is enhanced by a powerful kinesthetic experience—that is, the body's perceptions as it moves through the space. This experience is enriched by the ways in which the overall parti connects the house not only to its natural setting, but also to its place within the larger history of architecture. ■

Sources

Curtain wall: *MAG Hansen (frameless double-glazed low-E units)*
Concrete: *O'Rourke*
EIFS: *CCS Scotseal*
Built-up roofing: *Sarnafil (single-ply membrane)*
Elastomeric: *Sarnafil*
Downlights: *ERCO*
Carpet: *Interface*

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small narrow
nezzanine for a library
uns along the rear
vall of the gallery/hall,
nd is lighted by
ranslucent, C-channel-
pinted glass.





A sketch (above) shows the relationship of the house to overlapping circles of the lawn, meadow and woods.





The south end of Howard House looms over a breakwater of rugged granite boulders. The tall windows, which give the living room panoramic views of the bay, are aluminum frames reinforced by steel sections.

Amid lobster pots and fishing boats, Brian **MacKay-Lyons'** corrugated-steel **HOWARD HOUSE** rises on a rocky Halifax beach.



By Charles Linn, AIA

En route to architect Brian MacKay-Lyons' recently completed Howard House, a wooden bridge crosses a narrow inlet from the ocean. On each side of this passage to the Atlantic, boathouses, piers, and utility sheds have literally been built on top of each other, right behind small, single-family frame houses. The yards in this Nova Scotia village, south of Halifax, are decorated by old fishing boats, stacks of lobster pots, and bulky unidentifiable objects covered by sheets of bright blue plastic. When MacKay-Lyons calls it "dogpatch," he does so with respect, even reverence. "That's my palette, there," he says, gesturing with a flourish of his open, upturned hand. "It's dogpatch, but its almost urban. These are nice sheds, eh?"

Elements of these structures—metal and wood siding, galvanized-steel roofing, open trusses, and cable-and-turnbuckle assemblies—turn up regularly in MacKay-Lyons' work. Often he hires boatbuilders and ironworkers to fabricate them for his projects. But these components are not incorporated into his architecture as vernacular pastiche. "People think of me as a regionalist, but it's just a pragmatic thing," he insists. To build intelligently in a given place, MacKay-Lyons thinks one needs a deep knowledge of the local material culture—an understanding of what materials are used to build, and why and how they are put together. "If you tap into the vernacular method of doing things, which is very rich here, you can get a lot of stuff built cheap," he points out. "And if you don't do that, you'll end up having to drive a taxicab, and then you don't get to build, right? Especially if you're in a poor place where there aren't a lot of rich aunties to pay you to build houses for their nephews."



Much of what determines how people build in Nova Scotia is dictated by its variable and frequently harsh weather. According to locals, it can be 70-degrees Fahrenheit today and 20 below zero tomorrow. Fighting the weather all the time, Nova Scotians tend to build simple boxes with durable cladding, like noncorrosive metal and asphalt shingles—materials that can expand and contract. "If we do use boards," says MacKay-Lyons, "we're very careful: they're only nailed on one side, like a boat is built. We let them grow and shrink. With boards we always use a rainscreen because a lot of rain here falls horizontally."

Construction details, however, weren't the first thing occupying the mind of the Howard House client, art historian David Howard. A transplant from Vancouver, he was determined to take a scholarly approach to the design of his house. "I wanted the house to engage you in a thought process about how to bisect the aesthetics of pure and natural forms. I wanted to explore the separation between the sublime and the pastoral."

Howard House stands beside a bay in a small village of clapboard houses, on a lot MacKay-Lyons describes as "a pasture

Project: *Howard House*
Owners: *David and Vivian Howard*
Location: *West Pennant, Nova Scotia, Canada*
Architect: *Brian MacKay-Lyons Architecture—Brian MacKay-Lyons, principal; Niall Savage, Trevor Davies, Talbot Sweetapple*
Engineer: *D.J. Campbell Comeau Engineering (structural)*
General contractor: *Andrew Watts, Builder*







SECTION

1. *Deck*
2. *Bedroom*
3. *Living roo*
4. *Kitchen*
5. *Open*
6. *Storage/ga*
7. *Courtyard*

where a fisherman used to keep a milk cow." He realizes that clients come to him when they're "ready to do some down and dirty things." If they're "from away," as natives say, MacKay-Lyons helps them land on their feet. If they buy an overgrown field, he'll introduce them to a local farmer who can recultivate it. "That's good for the community." Then his four-person Halifax firm will site the new building off to one side of the field, not in the center of it.

In characteristic MacKay-Lyons style, the architect worked up a scheme for Howard House with his clients at their very first meeting on

"TOGETHER WITH THE CLIENT, YOU GET GIDDY ABOUT AN IDEA, RIGHT THERE ON THE SITE, AND THEN YOU BUILD IT."

the site. "You get giddy about an idea together right there," he says. The [illegible] shed like [illegible] is a simple form, a corrugated [illegible] that emerges from the rocks. A cast-concrete volume on [illegible] of the building, which contains stairs and a fireplace, is described by MacKay-Lyons as the "[illegible] pad," a mass that breaks the prevailing westerly winds shooting across the site.

One enters Howard House through one of the large metal sliding doors to either side of the building. Behind these doors is a skylit courtyard whose centerpiece is a large granite boulder, surrounded by the same fist-sized, weathered granite rocks found in the yard and along the beach. The courtyard—a manmade void with nature running through it—expresses David Howard's notion that a house can be a form bisecting nature. The court also acts as a microclimate, where partially or fully open doors provide cross ventilation in the warm months. Windows on the east side of the house are larger than on the west, controlling summer heat gain. The size differential creates a Venturi effect with the prevailing westerly winds.

Metal doors slide aside to reveal the house's interior courtyard (above, and opposite bottom). The master-bedroom loft has views into the living room and courtyard (opposite top left and right).

A wood-plank walkway inside the courtyard leads south to a sliding glass door, the house's main entry, opening into the kitchen and dining area. The kitchen merges the double-height living room, where tall steel-braced, aluminum-mullioned windows with a balcony frame spectacular views of the bay. Bookshelves, the television, and fireplace are grouped along the living room's west wall.

The Howards have two young children, and Vivian Howard says this continuous space works well with her family's informal lifestyle. The open upstairs master-bedroom loft has a built-in writing desk that

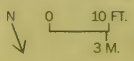




GROUND FLOOR



UPPER FLOOR



overlooks the living room, balcony, and water. A window at the opposite end of the loft overlooks the courtyard.

It must cross the mind of anyone who, like David Howard, sets out to build something challenging conventional notions of what a home is—particularly in a village of traditional clapboard frame houses—that the neighbors won't like the new. On the contrary, Howard says his neighbors have all visited and love the house. MacKay-Lyons isn't surprised. "It's only people from away who want to built Victorian reproductions that hate my work. The fishermen and builders—people who understand the material culture—they get it, and they like it." ■

Sources

Metal/glass curtain wall: *Alumicor-South Shore Glass*
Metal roofing: *VicWest*
Aluminum windows and doors: *Alumicor*
Skylights: *Velux*
Cabinetwork and custom woodwork: *S & M Woodworking*
Paints and stains: *Benjamin Moore*
Floor and wall tile: *Caesar-Andalusia (living and bath areas)*
Interior ambient lighting: *Juno Lighting*
Exterior: *Noma*

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Views south, toward the entry gate, reveal a bridgelike reflecting pool over a basaltic stone driveway (this page). The pool is also visible from within the entry corridor (opposite bottom). Facing the street, the house appears monolithic (opposite top).

Architect Alberto Kalach transcends the limits of a Mexico City site, creating the spatially inventive **GGG HOUSE** and its fragrant garden.

By Sarah Amelar



Just inside the front gate of the GGG residence in Mexico City, the house's complexity begins to reveal itself. Here, a driveway of basaltic volcanic rock swoops down alongside the building, passing beneath a shallow bridgelike reflecting pool: Metaphorically, the dry river seems to flow beneath the wet bridge. Within the house, an architectural language of interlocking spaces and planar elements that often slip past one another, instead of meeting, fully emerges. "You get a glimpse of a space, with diagonal views to other rooms, but then, you always have to go around something, perhaps a wall, to really discover what's there," says the house's architect, Alberto Kalach. "It's a bit like a labyrinth."

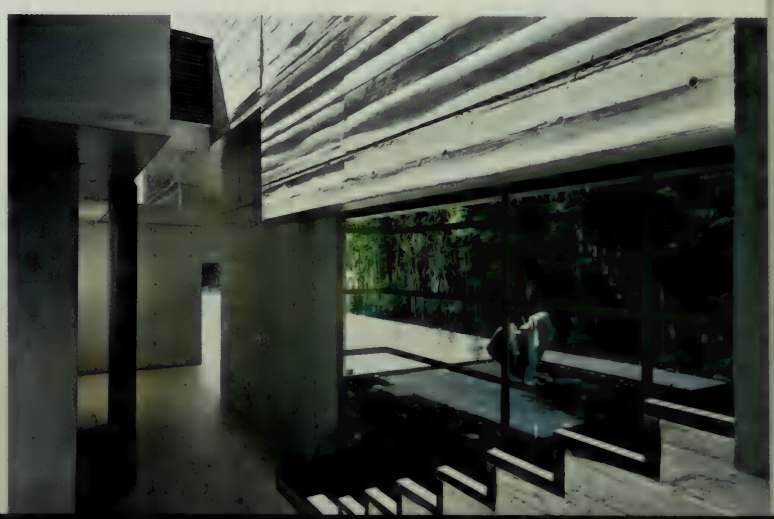
It is this very quality that transports you from the outer edges of an awkward site—bound by jarring adjacencies—through an experientially rich interior that extends into a lush and private garden. But outside the house's steel-plate front gate, the garden and the intricate journey to it remain hidden.

Sited just within the grounds of a golf-course development, five miles from the center of Mexico City, the one-third-acre lot abuts a poorer neighborhood with five-story, clothesline-draped apartment buildings directly behind it. ("In Mexico," explains Kalach, who has spent most of his life in Mexico City, "we often have these side-by-side contrasts between rich and poor.") The property faces the rear—or service side—of the golf clubhouse, and is flanked by a guard booth for this well-to-do community and the next-door neighbor's saffron-yellow faux hacienda. "These are the surroundings we wanted to make disappear," says Kalach, "Once you enter the site and house, the idea was to transport you to another world."

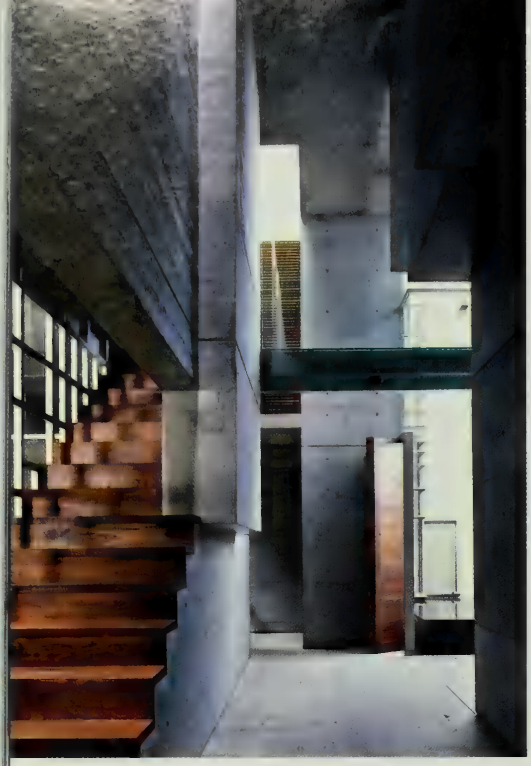
Inspiration for this 8,280-square-foot house came, in part, from Jorge Yazpik's rugged stone sculptures, one of which the architect positioned in each of the house's three reflecting pools. The sculptures, like the GGG House, investigate not only interpenetrating forms, but also, as Kalach explains, the voids between them. Both the house and sculptures have an intentionally limited palette, exploring the nature of a particular material. For GGG, that material is predominantly concrete, though glass, walnut, travertine, and steel also play key roles. "You can make almost anything you want with a continuous concrete surface," says Kalach, "and I like the idea of one material that can solve many different problems, such as the structure of big cantilevers."

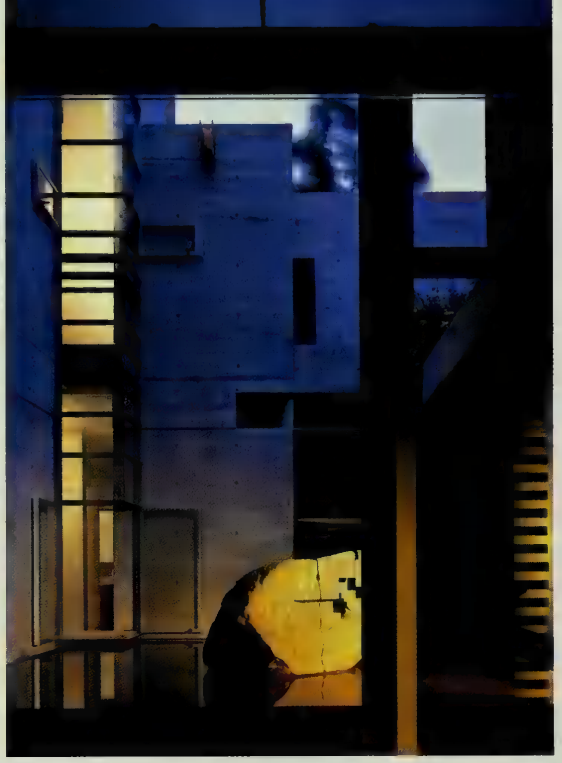
The architect had long dreamed of designing an all-concrete house, but many of his residential clients, he recalls, seemed "afraid of having a rough and monotonous material." And so, his previous domestic projects used concrete sparingly, combining it with brick and wood. With this home, however, the client, entertainment entrepreneur "GGG," took a more fearless approach. His attitude may have stemmed from his own knowledge of architecture. Soon after commissioning this home for himself, his wife, and two young sons, he was unexpectedly bedridden for two months, and seized the opportunity to read voraciously about architecture, turning himself into an enlightened and daring client.

With such free reign, Kalach took the opportunity to explore the possibilities of exposed, cast-in-place concrete. He created a warmly textured architecture more akin to the work of Paul Rudolph than the color-saturated buildings of fellow Mexican Ricardo Legorreta, or the



Project: *GGG House, Mexico City*
Owner: *GGG [full name withheld]*
Architect: *Alberto Kalach, assisted by Felix Madrazo*
Engineer: *Enrique Martinez Romero (structural); Rafael Lopez (electrical)*
Landscape: *Tonatiuh Martinez*
General contractor: *Miguel Cornejo*





The central court—a glazed, two-story shaft with a reflecting pool—provides a focus for the entire house. From the entry corridor (far left), a corner of the courtyard appears, just beyond a glazed bridge. A Jorge Yazpik sculpture stands at the reflecting pool's center (opposite, below, and near left) and a Wrightian corner window (near left) rises the full height of the court. From the second-floor bridge (opposite), views span a stone-filled terrace and a fiery red planting bed.

cool, precision-edged modernism of Mexico City-based TEN Arquitectos.

The first view of GGG House, approached from the south and hovering just behind the front gate, reveals smooth, telescoping concrete volumes, cantilevered at the edges. With essentially windowless monolithic forms, this is the house's most formidable face, shielding the interior from harsh southern sunlight and the encroaching dangers of Mexico City. (On the far side of the driveway, GGG has its own guard booth, manned 24 hours a day—supplementing the golf-club guard stations.)

Once over the threshold, the house's volumes start to pull apart at the seams: Separately articulated planes open spaces to one another and to the outdoors, both horizontally and vertically. Just as Yazpik's sculptures juxtapose the stone's natural roughness with its sleeker, light-reflective cut surfaces, Kalach contrasts smooth panels of concrete with the same material expressively cast against long, horizontal planks.

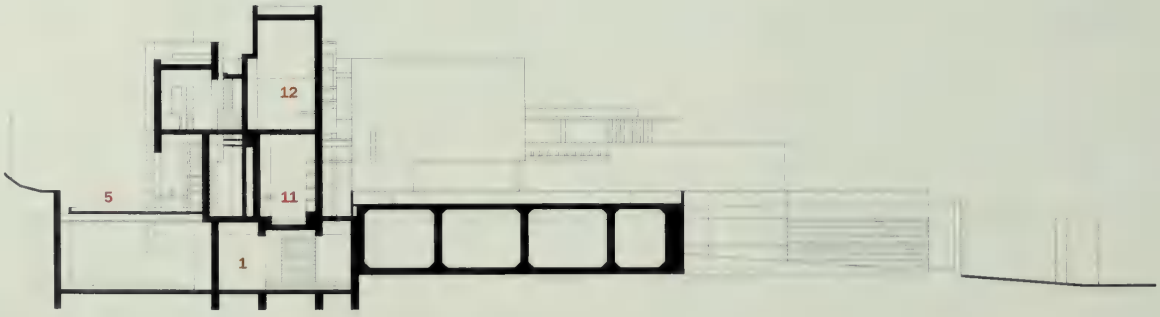
This rippled horizontal texture, catching light and shadow, animates the entry corridor's west wall, creating convergent perspective lines that lead the eye forward. The house, however, like much Latin American fiction, offers no simple linear narrative or path: Instead, there is complex layering with frequent choices. Here, to one side, a walnut-clad stair vanishes behind the west wall; ascending to the bedrooms, it borders a window wall overlooking the driveway and its reflecting pool. But directly ahead, on the entry axis, a bridge of icy green-blue glass with steel beams crosses above the ground floor. Just beyond it, light appears from multiple sources: through a clear unmullioned skylight, from behind a second-floor window slatted with walnut, and through the one visible [illegible] enclosed central courtyard.

[illegible] reach the courtyard and turn toward the east, this central [illegible] view, its vertical shaft visually connecting the house's [illegible] as the labyrinthine journey and brilliantly perverse as [illegible] the glazed court is virtually inaccessible: A reflecting [illegible] base. With a Yazpik sculpture at its center, the court



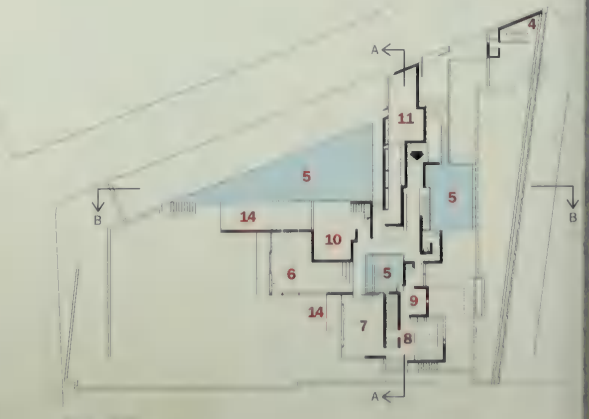






SECTION B-B



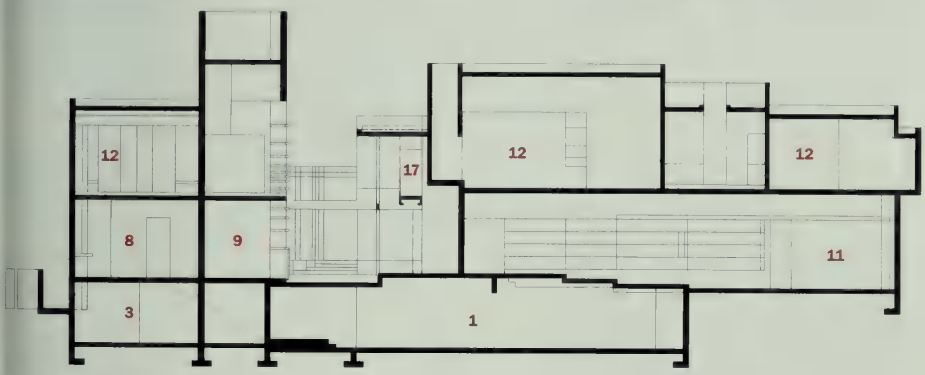


ENTRY LEVEL

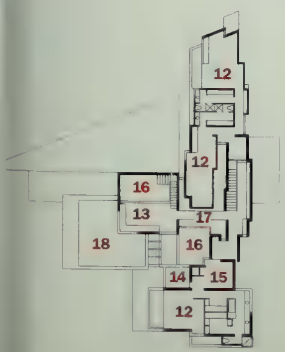


Unlike the house's monolithic front elevations, the rear facade breaks into planes, opening toward the garden (far left). With its two glazed walls slid open, the living room becomes an outdoor pavilion, shielded by a cantilevered roof plane (opposite). This room's character changes when the walls close, meeting at the corner (left and above). The steps to the living room bear a strong formal relationship to the central courtyard's Yazpik sculpture (left). A long triangular reflecting pool extends from the house into the garden (opposite).





SECTION A-A



UPPER LEVEL

1. *Four-car garage*
2. *Laundry*
3. *Servants*
4. *GGG guard booth*
5. *Reflecting pool*
6. *Living*
7. *Dining*
8. *Kitchen*
9. *Breakfast*
10. *Den*
11. *Library*
12. *Bedroom*
13. *Study*
14. *Deck*
15. *Sitting*
16. *Open to below*
17. *Bridge*
18. *Roof garden*



Shadows cast by a horizontal trellis against smooth concrete delineate an imaginary volume. The prowlike reflecting pool, extending into the garden, plays against the triangular form of the sculpture within it. The den—providing a vantage point for this view—becomes a quasi-outdoor room when its glazed panels slide open.







The dining room's walnut screen has a toothlike edge that visually complements the travertine living-room steps (far left, top). In the project's intentionally limited material palette, a walnut-and-travertine stair leads up from the den (far left, bottom). At GGG, no two glazed corners are identical. Kitchen and master bathroom corner windows (bottom left and opposite) give the sensation of being outdoors. A clerestory window glows above the bridge (left top).



provides a focus for the entire house, and its border offers a place to pause.

From this literal turning point in the plan unfolds a succession of interconnecting ground-floor spaces: the breakfast room, kitchen, and dining room to the north, and living room to the west. Each room bears a

THE LIVING ROOM SPILLS INTO A GARDEN LUSH WITH BAMBOO, FIG TREES, WISTERIA, JASMINE, AND JACARANDA.

different relationship to the central court: While the entry corridor gives oblique views of this terrarium, the breakfast room connects with its two-story shaft through a long vertical slit, the dining room is screened from it by a sliding walnut partition with heavy teethlike members, the living room is wide open to it, and the glass bridge overlooks it.

Throughout the project, Kalach constantly considered the nature of transparency and aperture, creating a lexicon of glazing details, particularly at the corners, that eliminates visible frames (embedding them in the concrete) and often mullions, as well. The quality of light is richly varied: While in one room three sides of edge-to-edge glass may define a luminous volume, reminiscent of the work of Carlo Scarpa, elsewhere a slotlike aperture may cast a precise slash of light.

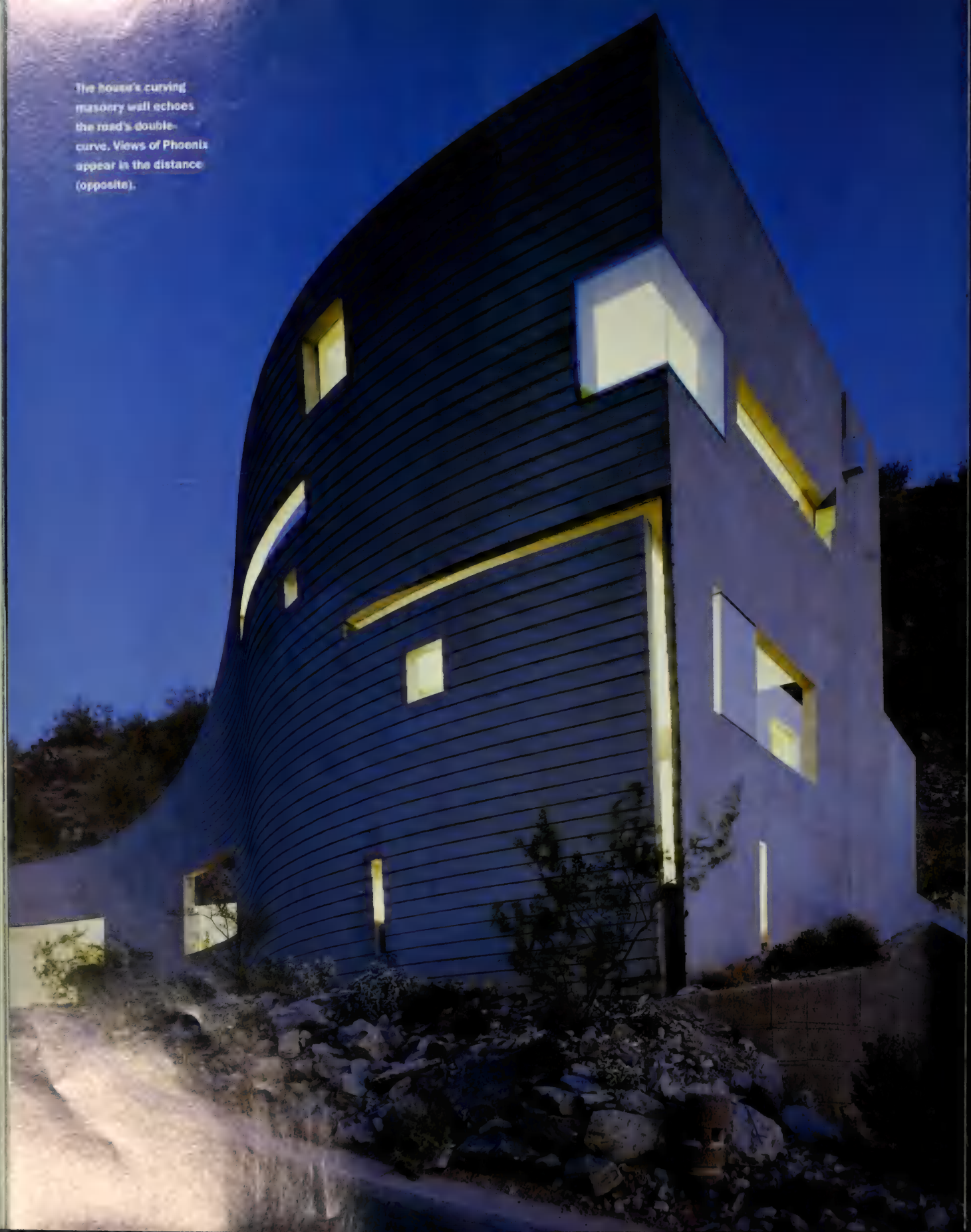
Whereas the journey toward the house's center is introspective, the rooms in the far reaches—the kitchen, living room, den, and, upstairs, the master bathroom—begin to merge with the outdoors. With two sliding glass walls that meet at a cantilevered corner, the living room can become an open pavilion spilling into a rear garden, lush with bamboo, fig trees, night-blooming jasmine, lavender, myrtle, jacaranda, and wisteria. Permeating the architecture, this paradise ascends towards the second floor windows via planted terraces—horizontal planes of color and fragrance that change seasonally, sometimes flaming red with ground creepers or purple with lavender—and shallow rectangular pools full of smooth stones, some covered with water and others dry.

Given the tight site, it is remarkable that the interior and garden seem so completely removed from the larger setting. With the changing effects of light and shade, the experience of this enigmatic house is one of continual reorientation. "In many ancient cultures," says Kalach, "there was a belief that you had to enter every house and every room indirectly, turning a couple of times because bad spirits move in a straight line: If you broke that axis, those spirits could not enter." With evil spirits banished, the GGG House's space breaks out of its concrete labyrinth into the garden, where the architect calibrated the massing and landscaping so that the surroundings, too, all but vanish. ■

Sources

Lighting controls: *Lutron*
Plumbing fixtures: *Agape*
Stone: *Travertine and basaltic volcanic*

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The house's curving masonry wall echoes the road's double-curve. Views of Phoenix appear in the distance (opposite).

In the Phoenix desert, Wendell Burnette's great curving wall embraces his garden oasis and prowlike **SCHALL RESIDENCE**



By Wendy Moonan

"It reminds me of my honeymoon in Marrakesh," a neighbor told Phoenix architect Wendell Burnette, referring to the Schall Residence, his latest house there. "My wife and I arrived at the airport, got a taxi, wound through narrow streets, and stopped at a giant wall with a little door," the neighbor continued. "I told the driver, 'This can't be the place.' We knocked, and the porter answered. Beyond the door was heaven."

Burnette has never been to Morocco, but he was pleased by the analogy. "A lot of the imagery and emotion for the house [actually] came from Morocco," he says. "Houses there have a kind of urban quality, with high walls, cooling towers, and shade."

A walled compound was his response to a dense, nondescript residential development on North Mountain in the Phoenix outskirts. The one-sixth-acre site, at the end of a cul-de-sac, has sweeping views of the city in the valley below and the Sierra Estrella range beyond it. Behind the house rises a wall of desert vegetation and raw red stone: a natural cut in Phoenix's pristine North Mountain Preserve. One of Burnette's challenges was the 1980s housing stock surrounding the site: "a hodgepodge of Taco Bells," he recalls. Editing the context, the architect says, became both a "defensive position against visual pollution" and an opportunity to create an urban courtyard house. He wanted the interior to feel like paradise.

Originally from Nashville, Burnette has been passionate about the desert since he moved to Phoenix in 1980, following high school, to study at Taliesin West. After working with architect Will Bruder for 11 years, Burnette became a solo practitioner in 1996. He often works with his wife, Debra Burnette, a landscape designer specializing in desert vegetation, who collaborated on this project. "For me, the desert is like a dry ocean," he says, "Here, I wanted something sailing across it."

The Schall Residence, approached from below, looks like the hull of a ship, looming 40 feet above the cul-de-sac. A curving concrete-block wall, finished with a mortar wash of Portland cement and silica sand, mimics the double curve of the street's turnaround. And because the wall is also canted at its southern end 3½ feet over the street, it appears to billow. Each course of masonry block overlaps the one beneath it, like the bands of timber on a hull, adding striations and shadow.

This corbeled form may seem overpowering, but it is not arbitrary. Walking across the street from the site one day early in the project, Burnette made a discovery: From an elevation 30 feet above the building pad, he could see a dramatic city skyline in the distance—looking straight down Central Avenue, the spine of Phoenix and the only street with towers. He realized he could get views of the downtown skyscrapers if, as he puts it, he "pushed the envelope. . . [to] capture every square inch of the site." And so, he designed a walled 2,200-square-foot house upside-down—that is, with the main living spaces on the second floor to take in the views.

The compound's entrance is through a large cut at the north end of the wall. Here, the masonry is no longer corbeled or canted, but vertical and seamless. The opening in the wall leads to a driveway, carport, and garage. Debra Burnette designed the motor court to spark the

Wendy Moonan is the architecture editor of House & Garden *and a frequent contributor to* ARCHITECTURAL RECORD.

Project: *Schall Residence, Phoenix, Arizona*
Owners: *The Schalls*
Architect: *Wendell Burnette Architects—Wendell Burnette, Michael Le Blanc, Richard Hofmeister, design team*
Engineers: *Rudow + Berry, Inc. (structural); Otterbein Engineering (mechanical); C.A. Energy Designs (electrical); Castro-Fleet (civil)*
Consultants: *Debra Burnette Landscape Design (landscape); Lighting Dynamics (lighting)*
General Contractor: *Baywest Construction Management, Inc.*



senses. As you approach the house, crunching gravel underfoot, you pass blue trumpet morning glories, grape vines growing up a harp trellis, and a pink-flowering Mexican amapa prieta tree with spreading boughs. Even though you cannot see it, you can hear a fountain.

The procession through the house is a spiral winding upward. In true Wrightian fashion, the spaces contract and expand. For example, just inside the perforated-steel front gate, a dark tunnel-like passage suddenly opens out into a 14-foot-high patio tucked under the second-floor living quarters. This patio offers a spacious, shaded place to pause before entering the sanctum of the inner courtyard.

A "GROTTO FOR THE SENSES," THE COURTYARD IS SUNNY IN WINTER AND SHADY IN SUMMER.

The courtyard, with a fountain-fed swimming pool, a vivid flower garden, and an Arizona sweet orange tree, has only three walls; a line of horsetail reeds planted against the cut in the signed for the Phoenix desert climate, this "grotto for the outdoor room that is sunny in winter and shady in slit in the far corner—one of several in the pro- effect, which draws in breezes, accelerating and courtyard toward the mountain. (After three months in the house, the clients, a retired aerospace defense engineer, and his wife, business manager for the Arizona Corporation Commission, have yet to turn on the air conditioning.)

The front door, one of Burnette's most inventive moves, is a custom-made steel elevator on the side of the house, opening onto the courtyard. Burnette designed it for the engineer, who has hip problems. The perforated stainless-steel cab is a jewel-like piece. In plan, it's an asymmetrical oval—the architect calls it a "squished-egg geometry"—that travels up into a cylindrical, wood-framed shaft. The shaft itself has a glass roof, giving it a nimbus of light and views of the sky.

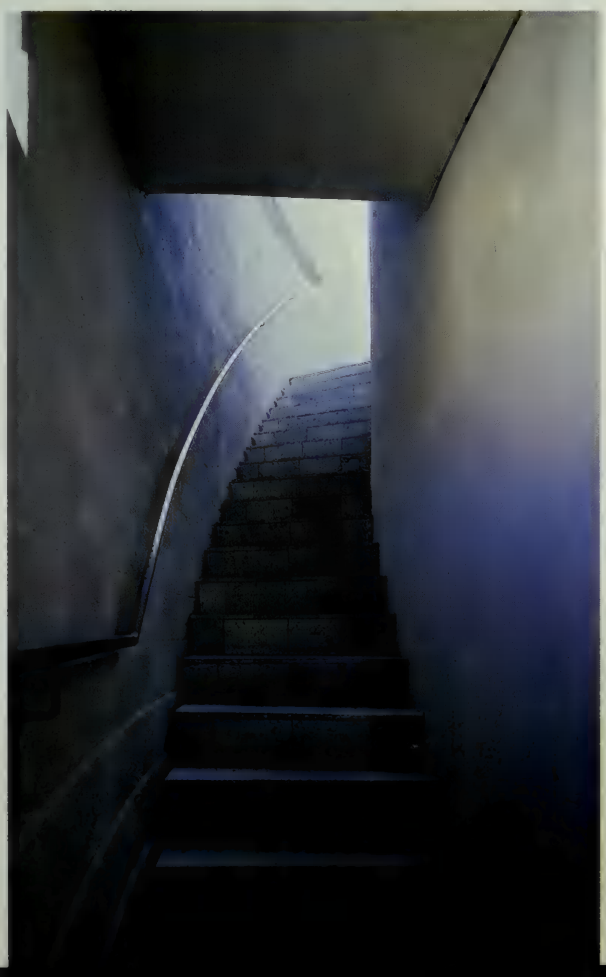


For those walking, an elegant, curving, skylit stairway, paved in Mexican cantera blanco stone, also leads a flight up, arriving at a barbecue terrace, over the garage, and an evaporative cooling tower that gently chills the ambient air of the patio below. The terrace leads to the kitchen and the clients' main living area. White-walled with



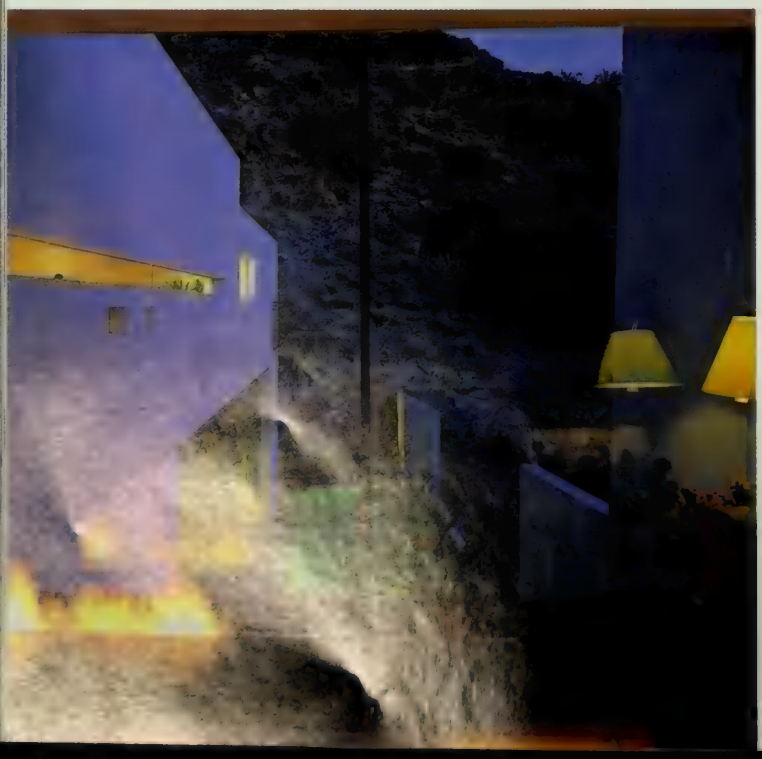


Stuccoed rear elevations open up to the pool with its walled-in garden and patio (opposite top; this page, top left). A stainless-steel elevator ascends to the second floor, as does a curving stair (this page, top right and bottom). Slotlike windows help create a Venturi effect that draws in and accelerates breezes.









In the living room (above), a glazed, unmullioned corner yields spectacular views. Fuel-fed flames emerge from a granite channel set in the floor (left). In the kitchen/ dining room, curly maple faces the cabinets (opposite).



UPPER LEVEL



GROUND LEVEL

1. *Carport*
2. *Elevator*
3. *Guest*
4. *Swimming pool*
5. *Garden*
6. *Shaded patio*
7. *Garage*
8. *Dining*
9. *Kitchen*
10. *Living*
11. *Bedroom*
12. *Barbecue terrace*



maple floors (salvaged from a World War II-era factory) and bird's-eye custom maple cabinetry, the 1,400-square-foot second-floor quarters include a kitchen, dining and living areas, a bedroom, and one-and-a-half baths. If you arrive by elevator, you immediately confront a horizontal strip window—one-foot high and 20 across—perfectly framing South Mountain and the distant Sierra Estrella without revealing the nearby sprawl.

"MY GOAL," SAYS BURNETTE OF THE SCHALL RESIDENCE, "WAS TO RESTORE SERENITY TO THE SITE."

Beyond the dining area, a loftlike living room spans the courtyard below. Here, at the ship's prow, is a window with mitered edge-to-edge glass. Frameless, the large panes are clip-angled and silicon-sealed directly to the building's exterior masonry. Above this aperture, the ceiling curves up from 8½ to 14 feet, drawing you toward the only place in the building with skyline views. Burnette fitted this corner with a glass-topped table and built-in seats for two.

For the opposite side of the room, the architect designed, instead of a conventional fireplace, a veritable wall of fire that emerges from a 14-foot-long piece of honed, green granite, set in the floor and bisected by a narrow channel. Fed by solid cooking fuel, flames erupt, crackling like logs. Behind it rises a canted glass wall with views toward the courtyard below.

Throughout the house, the windows—some set flush and others recessed—are all fixed. Ventilation, with frequent Venturi effects, flows through screened 10-inch square openings, with hinged cabinet-like covers, and open sliding glass doors. Each window is individually shaped to frame a specific view of desert, mountain, city, or sky—but never of the houses next door. "My goal," says Burnette, "was to restore serenity to the site."

This house is about site-specific space-making and invention. The clients knew from the start that their architect had this kind of ingenuity; they hired him after stopping on the street to look at the Burnettes' own house [RECORD, April 1996]. As Wendell Burnette puts it: "The three-dimensional business card worked." ■

Sources

Masonry: *Superlite/Western Block (CMU)*
Stucco: *EIFS Stucco System by Dryvit (with integral color)*
Metal: *Mill-finish stainless steel*
Glass: *Clear and blue-green Eclipse (reflective glass by Pilkington)*
Lighting: *Halo, Nightscaping/B&K, Luce Plan, Flos*
Plumbing fixtures: *Speakman*
Elevator: *Waupaca*
Furniture: *Knoll, B&B Italia, Knoll, XO, Herman Miller*
Cabinets: *Curly and quilted maple (custom)*

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Perched on a steep granite hillside (site plan, opposite), House Into closes itself to the neighboring houses (opposite top), while exposing open, dynamic elevations (this page) toward the sea to the west.

On a coastal hillside near Helsinki, Jyrki Tasa challenges the clichés of contemporary Finnish architecture with his exuberant **HOUSE INTO**.



By Peter MacKeith

A home away from the city, however modest—in a forest, along a lake or seacoast—is a vital desire for many Finns and a potent symbol of the cultural psychology. But drive 20 minutes west of Helsinki's center, into suburban Espoo, and the built realities of contemporary Finland come into focus. Corporate headquarters line arterial highways, and bedroom districts of private homes and bland prefabricated apartment blocks cluster close by.

In Soukka, a coastal district of Espoo, the spread of such recent construction is evident, even on the stony shoreline. But along a stretch of coastal road overlooking the Helsinki archipelago—dotted with diminutive "manor houses"—architect Jyrki Tasa's House Into stands as an exception. Poised atop an exposed granite ridge, it resembles an airship, hovering between ground and sky.



"Into," the client's first name, is also a Finnish root word meaning zeal, which fully conveys the design's architectural energy. Built as a small home for a recent retiree from the construction industry (and relative of the architect), the house departs strikingly from local architectural convention.

In the view of Tasa, a seasoned practitioner and professor at northern Finland's Oulu University, Finnish architecture should draw on a more complex genetic code than the region's typically rationalized, prismatic, and sleek contemporary buildings would suggest—a code more expressive and dynamic in form, and more varied and textured in materials. Though many of House Into's architectural gestures may appear extravagant on first view (orthogonal relationships are in short supply), they actually proceed from sensitivity to both site and program.

From the low road approaching the house, perspectival distortions and a multiplicity of textures initially amplify the perceived scale of the 2,000-square-foot building. Five mastlike, attenuated and skewed steel columns, cable-stayed and footed directly into the granite, gingerly support the wooden rafters of an uptilted roofplane. A central, 46-foot-tall chimney shoots through the roof, disappearing through an oculus. The roof shelters a broad deck and a faceted, screening enclosure of steel, glass, and wood. Cantilevered from a partial concrete foundation, the building appears to float above the ridge, introducing the project's quasi-aeronautical themes and language of suspended and tensile members.

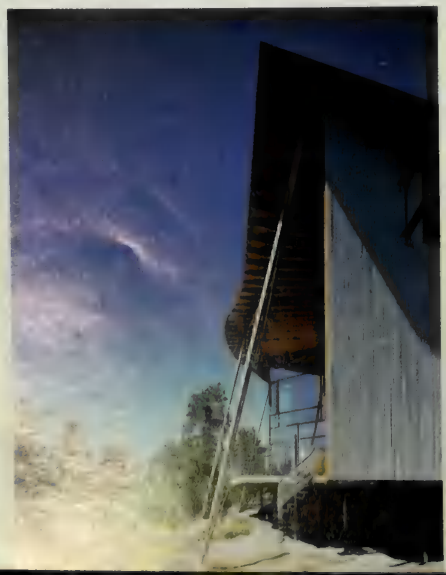
Surprisingly, the entry drive then bends up and around to the house's opposite side, leading to a more solid, white wood-clad elevation, calmly composed and scaled, with discretely framed windows, a tall, narrow entrance slot, and level roof line. This polite, hard shell clearly shields the interior from nearby hillside houses, which virtually push against their lot lines. But even this apparently stiff and restrained face splays outward, forming a wedge-shaped plan that opens to light and views. The formally expressive plan is reinforced in section by the roof's upward tilt and the undercut volume of the house, so delicately balanced on the bedrock.

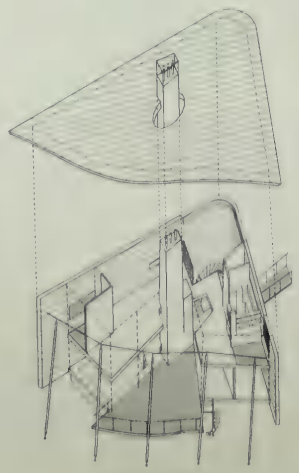
A few elegant details highlight the entry-wall composition: The roof hovers above this facade, allowing light to filter in through a clerestory strip; a second-floor steel window frame slides out perpendicular to the wall (opening a kitchen balcony to the outdoors); and a spiral

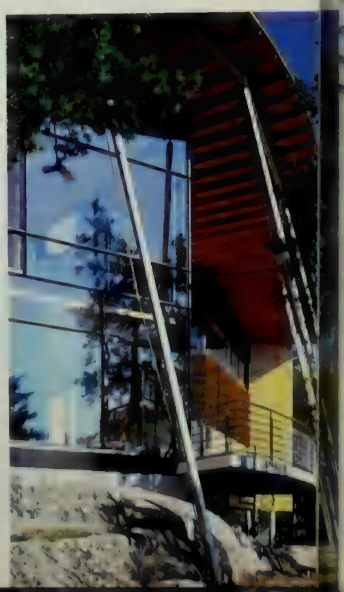
Peter MacKeith, former director of the International Masters Program in architecture at Helsinki University of Technology, is currently Assistant Dean of the School of Architecture at Washington University in St. Louis.

Project: *House Into, Espoo, Finland*
Owner: *Into Tasa*
Architect: *Jyrki Tasa*
Engineers: *Pertti Ranta (structural); Markku Kallio (HVAC); Kalevi Utukka (electrical)*
Landscape: *Jyrki Sinkkila*
General Contractor: *Veijo Makkonen Ky*













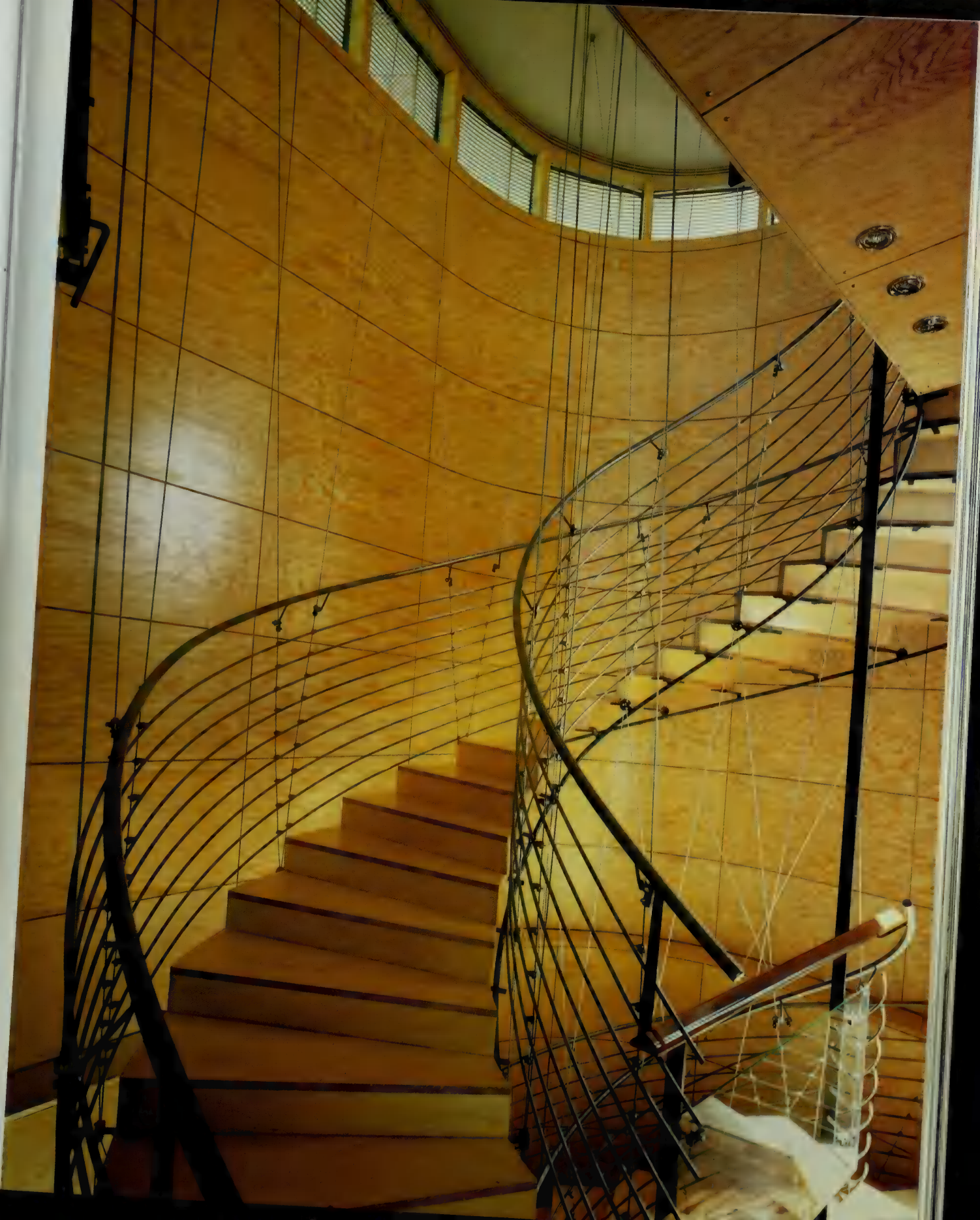
Skewed steel columns, cable-stayed and footed directly to the granite, accentuate the project's language of tension and suspension (opposite). With various types of wood, including cherry floor boards and pine-veneer plywood wall panels in the living room (this page top), Tasa creates a range of textures. The pendant living room lamp is of his design. A deep deck (this page bottom) extends the glass-enclosed swimming area to the outdoors.



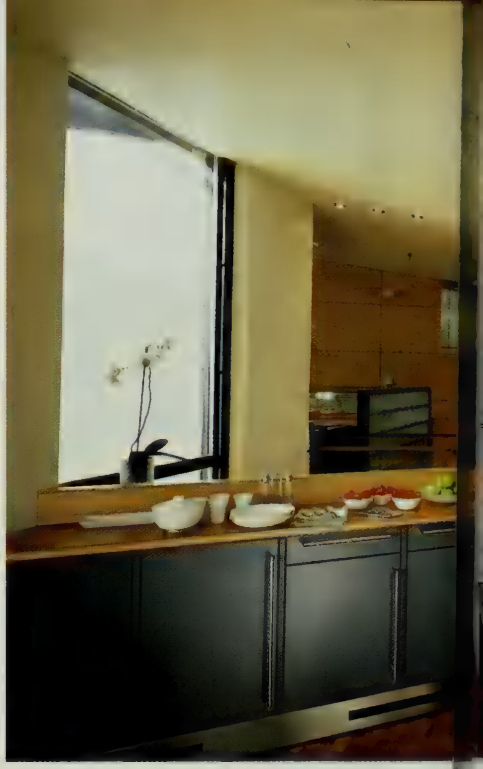




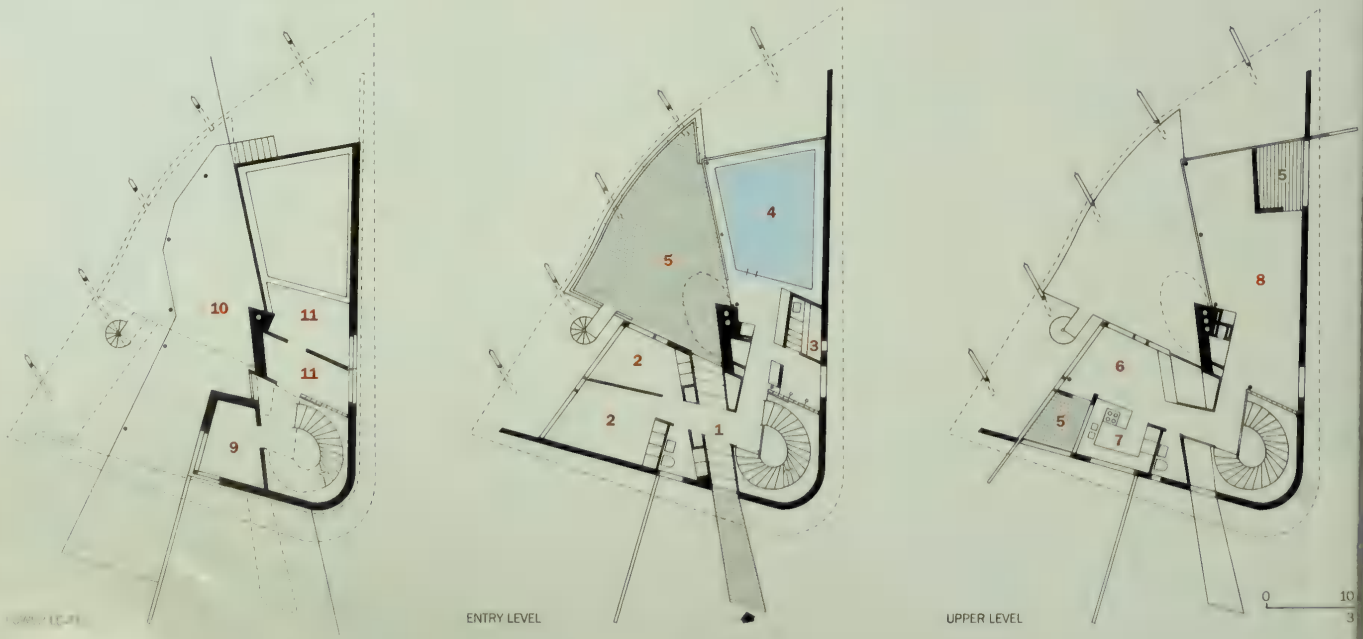
The great spiral stair (this page and opposite) offers a slow, dramatic ascent on cantilevered plywood treads, stabilized by a suspension system of intertwined steel cables and rods. The two-story stair is illuminated, in part, by sunlight filtering through a glassblock wall (below), clerestory windows (opposite), and a glazed door to the deck (left bottom).







Glass walls open the living room to seascape views (above). The kitchen (above center and opposite) is deftly organized with rod-suspended stainless-steel shelves designed by the architect.



1. *Vestibule*
2. *Bedroom*
3. *Sauna*
4. *Swimming pool*
5. *Deck*
6. *Dining*
7. *Kitchen*
8. *Living*
9. *Hobby room*
10. *Parking*
11. *Mechanical/storage*







of steel pipe forms a fire escape. A gangplank to the front door arcs over a small pond—as if this fantastic aeronautical machine had just alighted.

Once aboard, behind the opaque facade, a narrow bridgelike vestibule is suspended in a stair hall that opens to the floor below. Here, spatial scale is compressed, yielding at once several views: through this level's two small bedrooms and glassed-in sauna with plunge pool, and down to the lower landing (leading to mechanical and hobby rooms). Light enters from many directions, with rays reflecting off the pool in its floor-to-ceiling glass enclosure. The plan and section activate movement through the house and site, proceeding from the tight, shadowed entry enclosure to the expansive, brightly lit pool area.

Within a bend in the plan rises a stair: a spiraling tour de force of cantilevered plywood treads and risers, stabilized by a suspension system of intertwined steel cables and rods (constructed despite the engineer's doubts). The dramatic ascent leads to open cooking, dining, and entertaining areas. Directed away from the surrounding tract development, views over the treeline reveal the seascape, facing toward western and northern light.

The top level resounds with nautical references: to woodcraft and assembly, to the decks, cabins, and metal fittings of ships. Along with dark cherry floors and walls lined in a staggered succession of plywood panels, Tasa designed prototypical furnishings—a divan, chairs, pendant light fixtures, and rod-suspended stainless-steel kitchen shelving.

In counterpoint to the stair, another major vertical element—a soapstone-clad tower of fireplaces and chimneys—occupies the home's literal center. While this tower can radiate heat at all levels (supplemented by piped warm-water and electrical heating systems), the project's spatial dispositions also address concerns of heat, air, and light: The extensive glazing and broad deck visually and physically project pool-and-sauna activities into the outdoors; a kitchen balcony draws southerly light; and the living area's semi-enclosed balcony catches the setting sun. The uptilted roof hovers above all. Lightly poised on the skewed colonnade and central tower, it draws in the low winter sunlight while shielding the interior from the high summer sun.

Reversals in programmatic expectations—the entry placed at the house's "back" and communal spaces on the upper level—optimize the everyday experience on this seaside perch, and literally elevate the primary purposes of the house as a place of entertainment and relaxation.

Remarkably, Into was built with very few formal drawings—no sections exist, for instance, or details of the winding stair. The architect relied, instead, on the client's experience and construction-industry contacts, coupled with ample advice and participation from contractors and engineers. This approach is still possible in the small-scale economies of Finland, with its traditions of craft and skilled construction.

Modern Finnish architecture has engendered works of superficial imitation and of true depth. House Into's modernity, while referential (perhaps a condensed version of Alvar Aalto's Villa Mairea), avoids the pitfalls of this legacy. Through formal invention, well-crafted details, and site specificity with modulation of light and movement, the building offers an experiential richness. If restraint and precision have defined the perception of contemporary Finnish architecture, then the portrayal has been stereotypical and incomplete. At least on a domestic scale, House Into fluently proposes complementary roles for gestural expressiveness—refined through construction—and outright exuberance. ■

Sources

Masonry: *Lakan Betoni*
Concrete: *Lohja*
Curtain wall: *Rautaruukki*
Windows: *Karelia/Ehi-Myynti (wood); Rautaruukki (steel)*
Glazing: *Lansilasi, Jura-lasi*

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Though the MA building's crisp, rectangular volumes contrast with the surrounding landscape, the structure (supported by five steel columns) barely touches the ground (this page and opposite).

Architect Hiroyuki **Arima** creates **"MA"** —a combined art gallery/atelier/visiting artists' house— perched on a verdant Japanese hillside.

By Naomi Pollock, AIA



MA is the type of commission many architects dream about. An assemblage of five pure, white cubic volumes, the project looks, at first, like a gigantic abstract sculpture, perched delicately on a steep hill. But MA—simply named for the first two letters of the client's name—is actually a two-story, 983-square-foot building, containing a combined artist's gallery and studio in a square room upstairs and an intimate atelier that doubles as a cooking and sleeping area in a second rectangular box beneath it. Architect Hiroyuki Arima intended the design as a neutral backdrop for the creative activities of his client, a sculptor who works in paper and wire, and for visiting artists-in-residence who stay days at a time while preparing and exhibiting their work. But while the calm, white planes and geometric purity offset the art, the boxes appear anything but demure against the lush landscape.

Twenty miles from downtown Fukuoka, the largest city in Japan's southernmost island of Kyushu, the property borders on Genkai National Park. Though this location brought restrictions, such as building-height limits and wastewater purification requirements, it still appealed to Arima and his client. "It was cheap, and its slope was interesting," says the architect, "I don't like flat land—slopes have power." The stark white boxes of cedar board and cement siding contrast dramatically with the natural setting—an untamed jumble of conifers, sandalwood trees, and bamboo—but Arima made a point of touching the land as lightly as possible. Only five columns, arranged irregularly in deference to the site's massive boulders, secure the steel-frame building to its footings.

Tethered loosely to the ground by a steel support, a metal stair leads up from the parking area to the roof, which overlooks rice paddies and the Genkai Nada Sea beyond. Though it has all the visual lightness of folded paper, the stair is actually composed of patterned steel plates, barely a quarter-inch thick and welded underneath to a steel beam.

Two boxy rooftop volumes, clad in cement board painted white, divert attention from the prefabricated log cabins and A-frames dotting the mountain rising steeply to the south of the property. One volume houses an art showcase with a skylight for the gallery. The other encloses, between two cement-board planes, a stair leading down to the gallery entrance. (Visitors must actually ascend to the roof to reach the gallery below it.) The entrance, a place that seems neither completely indoors nor out, is partially hidden behind a steel mesh screen that shimmers in the sunlight.

Inside the gallery, most exterior views are veiled by corrugated polycarbonate sheets that span the entire east elevation and west-wall clerestory, flooding the space with soft, diffuse daylight. As the sun moves across the sky, its muted rays animate the room's tin-plate ceiling and zinc-covered columns with changing reflections. Direct sunlight enters the gallery through a toplight that can be modulated by adjusting its "reed," a movable panel that Arima modeled after the innards of a woodwind instrument. Similar devices on either side of the stair down to the atelier open to allow the penetration of light and close in a horizontal position to provide art display areas. The sole sources of electric light are six tiny fixtures to be rotated as needed among the building's eight wall outlets. But these lamps shed so little light that the client initially

Project: *MA, Fukuoka Prefecture, Japan*
Owner: *Mariko Tamura*
Architect: *Hiroyuki Arima + Urban Fourth—Hiroyuki Arima, principal*
Engineer: *Uno Design Office*
General Contractor: *Imamura-Kenso Co., Ltd.*

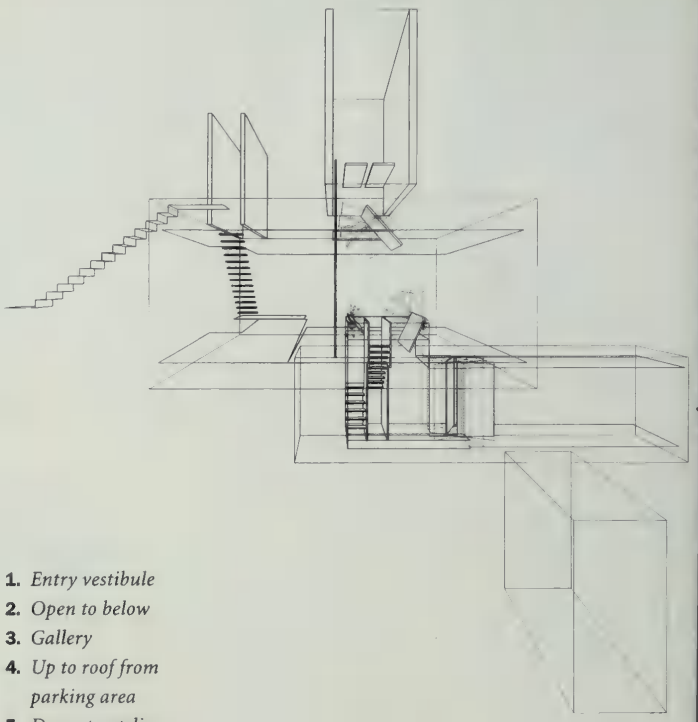
Naomi Pollock, AIA, is ARCHITECTURAL RECORD's Tokyo-based correspondent.



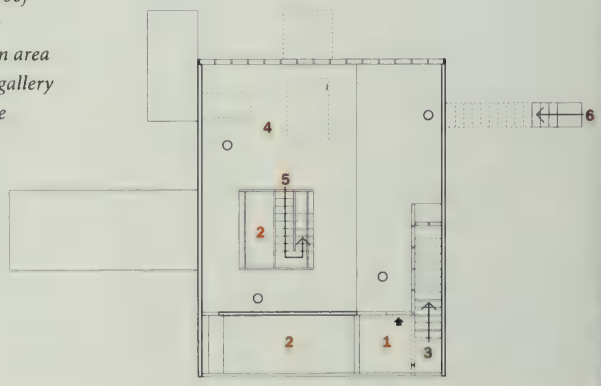


From the roof deck (top), views into the toplight (open to the elements) reveal the gallery, beneath a pivoting panel that modulates the introduction of sunlight.

Diffuse rays filter through windows (bottom), veiled in double-layered, corrugated polycarbonate sheeting, instead of traditional glazing.



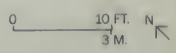
1. *Entry vestibule*
2. *Open to below*
3. *Gallery*
4. *Up to roof from parking area*
5. *Down to atelier*
6. *Up to roof*
7. *Atelier*
8. *Kitchen area*
9. *Small gallery*
10. *Storage*



MIDDLE (MAIN) LEVEL



LOWEST LEVEL





Light reflects off the gallery's tin-clad ceiling and zinc-covered columns. An open-riser stair leads from the roof deck to the gallery entrance.



The stair from the parking area to the roof deck has the visual lightness of folded paper, though it is actually made of steel plates, welded underneath to a steel beam. Its top (left) and bottom treads, hovering above the ground plane, appear to float. From some views, MA looks like an abstract sculpture: five white volumes, delicately perched on a steep hillside (below).

depended on a flashlight whenever she stayed in the building overnight.

With a partially sloping floor plane, the gallery design echoes the site's dramatic topography. Stairs, prominently placed in the middle of the room, lead down to the atelier. Here—in the building's most private zone—a large window at one end lets in light and views, creating a focus for this narrow studio jutting out from beneath the cubic gallery volume. A workplace and office for one, the atelier has all the trappings of an efficiency apartment—hardly an unusual living arrangement in Japan, where homes are small by U.S. standards and personal space very limited.

While Arima did not look directly to traditional Japanese architecture for inspiration, the influences are unquestionably present: in the doors that double as walls, in the translucent screening elements, circuitous entry sequence, and universal or multifunctional spaces. But in MA, tradition is highly abstracted. A striking building, it holds its own against the natural setting and the art created within it. ■

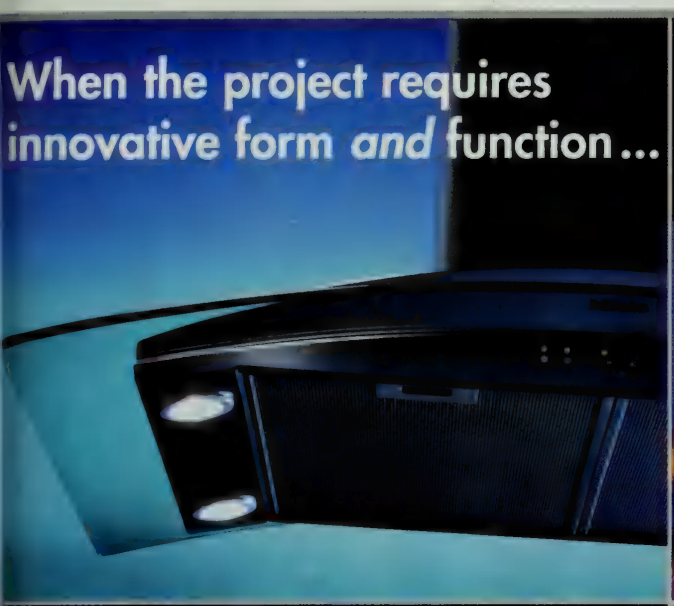


Ceiling: *Sheet tin*

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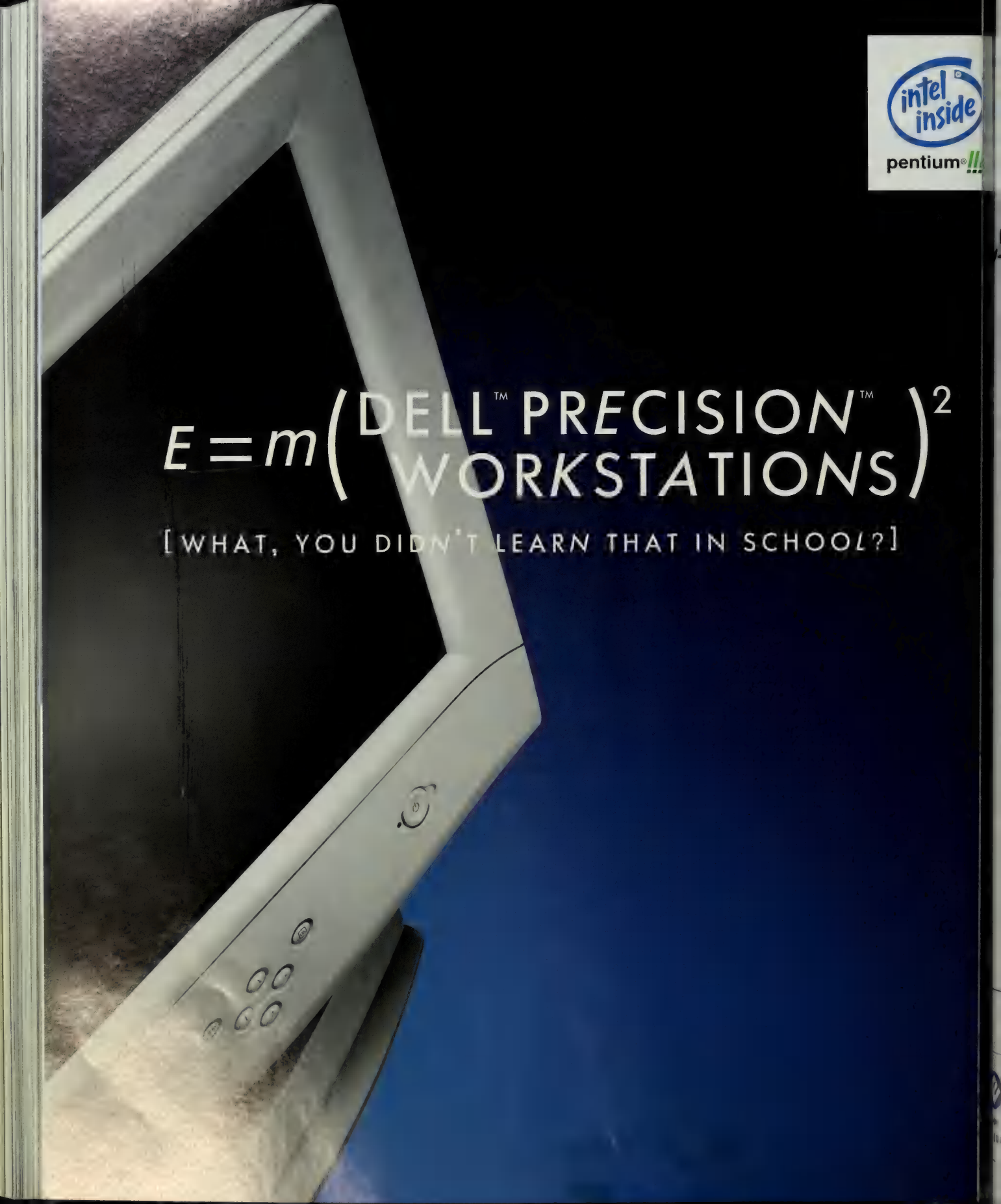
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ARCHITECTURAL RECORD CALL FOR ENTRIES

Record Interiors 2000

The editors of ARCHITECTURAL RECORD announce the 31st annual RECORD INTERIORS awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovations in program, building technology, and use of materials. The entry fee is $50 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or prints), this entry form, and a brief project description, all firmly bound in an 8 ½-by-11-inch folder—postmarked no later than April 30, 2000. Winning entries will be featured in the 2000 RECORD INTERIORS. Other submissions will be returned or scheduled for a future issue. Please include a self-addressed envelope with the appropriate postage, and allow 10 weeks for return.

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"Can this be legal?" he queried.



Interior Design Firm - *Alan J.E. Deal & Associates, Inc.*
Location - *Wulfmeier & Ottenwess / shown above - partner's executive office*

Products - *Sherwin-Williams ProMar®*
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An appeal to design

It was a most successful case: Alan J.E. Deal & Associates deftly negotiated a merger of individual tastes when the design firm recently created a new suite of offices for [illegible] Wulfmeier & Ottenwess law practice. Though prudence mandated that the [illegible] styles of the firm's two partners be duly represented in the 5,000 square foot repurposed space, in reality, their design perspectives were dramatically diverse.

To visually unite one partner's preference for conservative traditional finishes and furnishings with the other's wish for fresh and contemporary, Deal specified Sherwin-Williams paints in deep, woodsy tones of *Cabaret Purple*, *Leatherleaf* and *Hematite*, interspersing the rich shades with clean but complementing neutrals like *Ermine* and *Landmark Gray*. Through this judicious use of color and design principles, consolidation was completed. And the verdict? A unanimous win.

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CIRCLE 53 ON INQUIRY CARD

Mastering the Master Bathroom

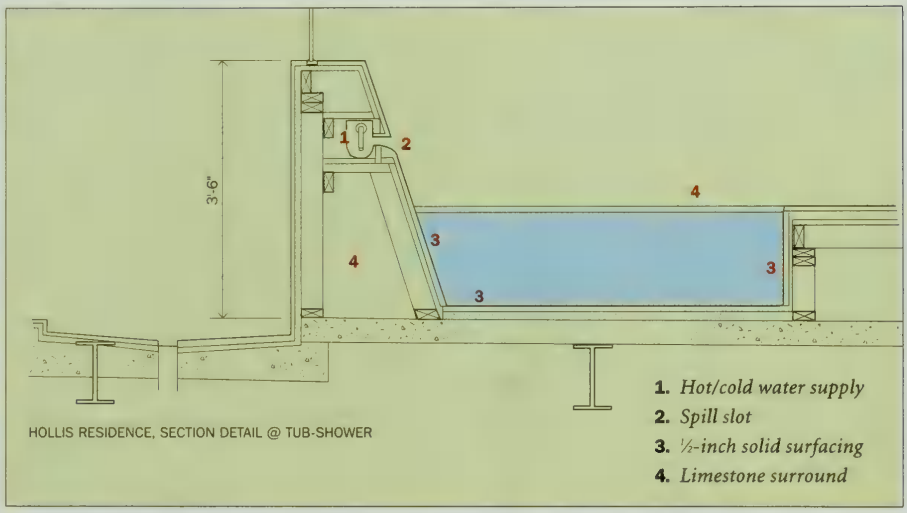
DESIGN SUBTLETIES ARE AS IMPORTANT TO THE SUCCESSFUL RESIDENTIAL BATH AS FAMILIARITY WITH NEW PRODUCTS, MATERIAL INNOVATIONS, AND SAFETY ISSUES.

By Charles Wardell and Wendy Talarico

Creating a space conducive to the ritual of bathing is a good problem for an architectural student," says architect Will Meyer of Meyer Davis Studio in New York City. That's because the master bath is one of the most complex rooms in the house. It's a small, tightly organized space, packed with fixtures and equipment, where one or more people perform a series of tasks—usually in a hurry, in a space clouded by moisture and odors. "Here, someone starts and ends the day," Meyer adds. A highly functional and beautiful space can enhance the daily ritual.

Most architects, by the time they finish school, have a good understanding of basic bathroom design. But it's practically impossible to keep up with all the new fixtures, materials, codes, and trends. "Architects who rarely design residential bathrooms can't stay current," says David Mullman of Mullman Seidman Architects in New York City. That's why it's important for them to find plumbers or mechanical engineers who are up on codes, knowledgeable hvac contractors, and plumbing suppliers who understand the latest fixtures and fittings.

These individuals can help the architect achieve optimal designs—the best shower drain placement, faucet height, and application of tiles to the wall. These are the subtle touches that make a bathroom work and make residential clients happy. "Architects may not design master baths every day," Mullman says. "But they use them every day. They know what works and what doesn't."



HOLLIS RESIDENCE, SECTION DETAIL @ TUB-SHOWER

Charles Wardell is a freelance writer based in Martha's Vineyard, Mass., who specializes in technology subjects.

The unglamorous side

The mechanics of the bath should further the architect's design goals. "The important thing is to create an attractive, sexy bathing environment," says New York City architect William T. Georgis. "It's about feeling wonderful and special, about having architecture help people transcend what's common and mundane."

Nothing will bring a client back to the common and mundane more quickly than a malfunctioning toilet. Low-flush toilets are still the bane of many otherwise flawless bathrooms. It still seems that "any significant amount of waste takes two or three flushes," Mullman says, though new models are quieter and more efficient than the old ones.

Concealing the tank in the wall saves space and facilitates toilet cleaning. These units aren't easy to replace if a problem develops, however. Tank access is through a wall-mounted coverplate. Several companies, including Porcher, in Chandler, Ariz., and Duravit, in Atlanta, offer this feature.

In the shower, thermostatic or pressure-balancing valves prevent blasts of hot or cold water. These valves, also known as antiscald devices, are required in some states. Pressure-balancing valves monitor water pressure and compensate for changes in hot or cold supply lines. Thermostatic valves monitor temperature as well as water pressure. The latter cost about one-third more than the pressure-balancing type. Alternatives to these valves include thermostatic shower controls from Wisconsin-based Kohler or Grohe America, in Bloomingdale, Ill. They

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 156 and follow the instructions.

LEARNING OBJECTIVES

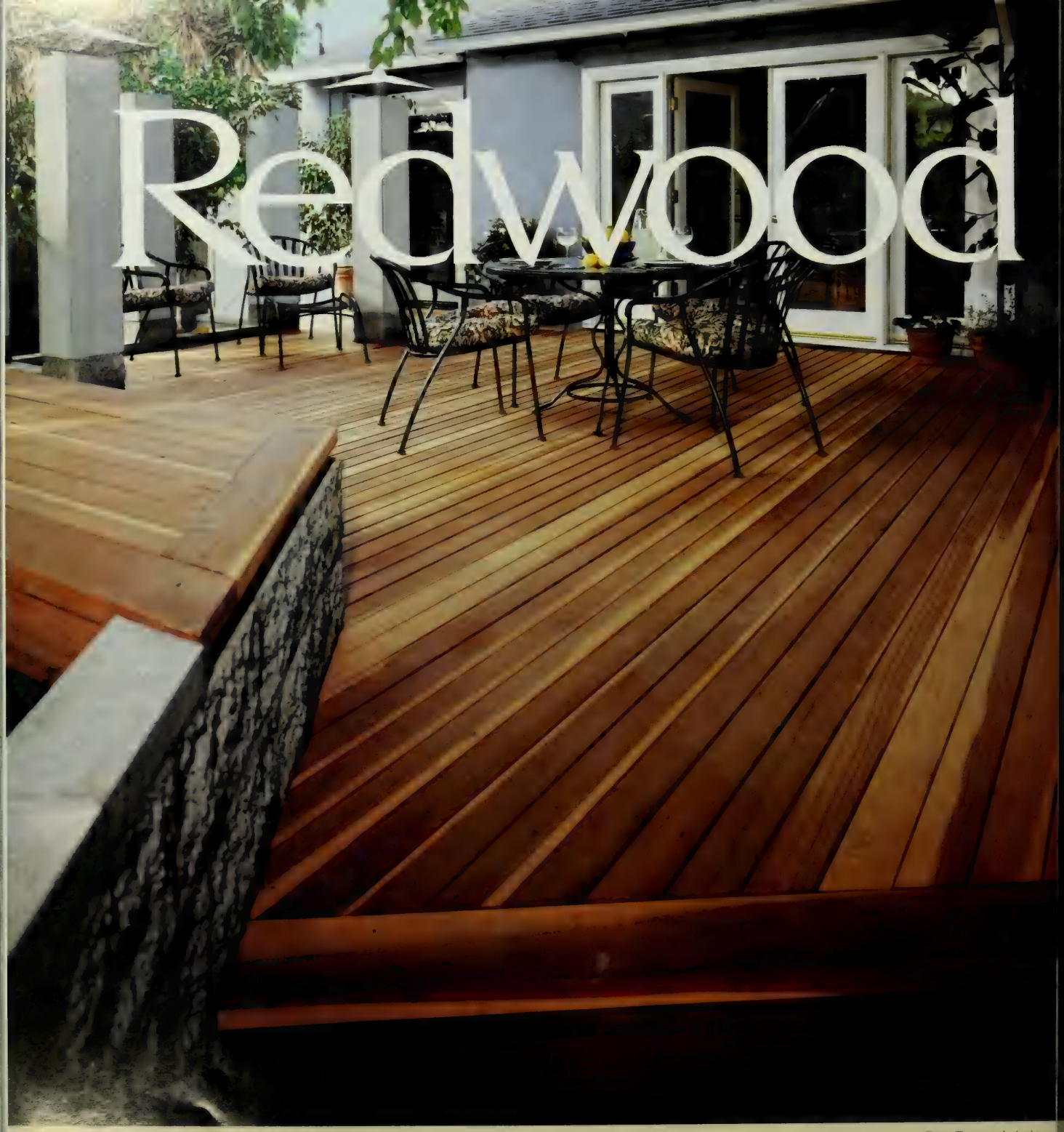
After reading this article, you should be able to:

1. Describe new technology available for controlling bathroom temperatures.

2. Describe the new technology for toilets.

3. Describe methods of venting odors and moisture.

4. Explain the goals of bathroom lighting and space design.



Craig Townsend, *Architect*

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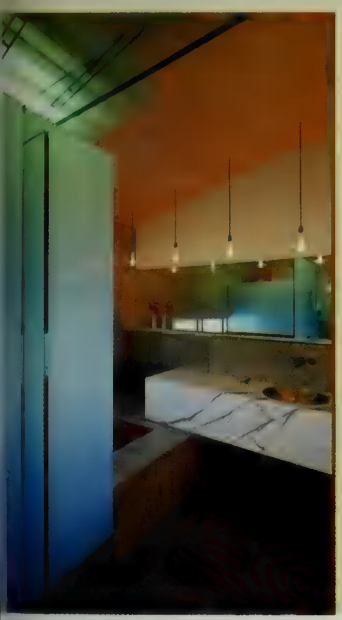
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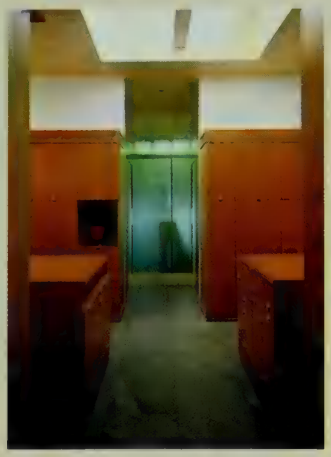
CASE STUDY

Project: *Hollis Residence, Paradise Valley, Ariz.*
Architect: *Randall Fonce, Phoenix*

The stone, wood, and glass in this 240-square-foot master bath seem bleached and warm, appropriate to the desert. The space comprises adjoining his-and-her baths, each with its own toilet and sink. His area has a shower, her's a tub. The areas are partitioned with mirrored doors.

The floors, walls, and backsplash are Indiana limestone sealed and covered with tree wax, a paste that's worked into the stone to give it a low luster. The vanity is Carrera marble, while the vaulted ceiling consists of white maple veneer over medium-density fiberboard. The wood was coated with a penetrating sealer to prevent moisture damage, and is also shielded by a glass ceiling suspended on ⅜-inch stainless steel rods over wet areas. The translucent ½-inch laminated glass, each blade measuring 8 inches by 4 feet, hangs in overlapping layers that follow the curvature of the ceiling over the tub and shower. The overall effect is like a jalousie window; glimpses of the wood appear through the glass blades that also diffuse the fluorescent ceiling lights.



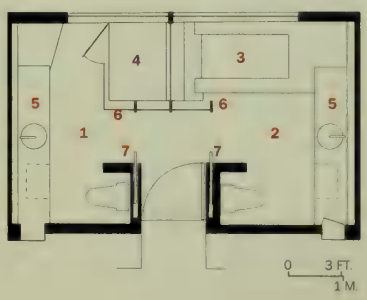


The same glass is used for panels to provide privacy around the shower and tub. The panels end 32 inches shy of the ceiling. The toilets are enclosed in walled compartments.

Fonce hid as many mechanical elements as possible since these, he says "distract attention from the architecture." Even the bath faucet is concealed. Tub water, instead of running from a spout, flows hidden into a hollow in the tub's backrest until it overflows, cascading through a narrow slot and down an angled backrest. The 66-by-32-inch tub is made from a seamless piece of red solid surfacing with a limestone surround. The backrest is black solid surfacing. "This creates a monolithic surface," Fonce says. "It's warm and smooth and comfortable."



1. *"His" bath*
2. *"Her" bath*
3. *Tub*
4. *Shower*
5. *Vanity*
6. *Glass partition*
7. *Partition door*



have separate controls for water volume and temperature, permitting a fixed temperature during water-volume adjustments.

In the tub, a handheld sprayer makes it easier for the user to rinse while bathing or clean the tub out after he or she is finished. If the sprayer gets immersed, however, dirty water can enter the supply lines when pressure drops. A backflow preventer, available on some sprayers, blocks this contamination.

Large tubs are glorious, but they fill slowly (and the water cools) unless the plumber installs a large supply line. A ½-inch line is typical, but a ¾-inch pipe, with a correspondingly large spout, is better. The best faucet for a tub or sink is solid brass with ceramic disks instead of metal and rubber washers, says David Landis, owner of Quintessentials, a plumbing supplier in New York City. And while many finishes, including nickel and pewter, look wonderful on the faucet, "the best choice for durability is still chrome," he says.

Venting odors and moisture

Bath fans are the first line of defense against moisture and odor. But noisy, rattling models are a nuisance, especially in a master bathroom adjacent to a bedroom. Several manufacturers, including American Aldes and Fantech, both in Sarasota, Fla., make fans with noise ratings lower than one sone (the equivalent of the soft hum of a refrigerator). These are typically remote-mounted units; the apparatus is installed in an attic, basement, or utility room with ducts running to the baths. These fans will move up to 200 cubic feet per minute (CFM) of air instead of the 50 to 100 CFM a typical fan. A remote-mounted system costs less than 10 percent more than a standard ceiling-mounted type—worth the investment.

The next challenge is making sure the fan gets turned on. Some, automatically controlled by humidistats, start up when there is a certain level of moisture—after a shower, for example—but they are not effective for removing odor. Fans controlled by motion detectors offer another

CASE STUDY

Project: *Grinstein Residence*
Architect: *Todd Bertellotti, AIA, GGLO Architecture and Interior Design, Seattle*

The original footprint of this remodeled bathroom, owned by a young business executive, featured tub/shower, toilet, and vanity areas that were so chopped up and compartmentalized, "you couldn't tell they belonged to the same space," says Bertellotti.

One of the challenges was to demarcate the bath's wet and dry functions while making it clear that each was a part of the whole. Bertellotti separated the shower and toilet areas with textured cast-glass panels. Recessed into the slate floor, they appear to rise from the stone.

Created by Joel Berman Glass Studios in Vancouver, British Columbia, the tempered panels were made by placing sheets of glass in a mold and firing them. The heat causes the sheets to conform to the mold's roughened surface. The result is a textured, wavy surface that blurs the shadowy outline of the person using the shower.

Natural finishes and materials were selected to evoke an ancient, rituals of bathing. The materials include multicolored slate wall tiles with a natural clefted finish, green slate 6-by-6-inch floor tiles that were tumbled to create slightly worn edges, and a freestanding, black slate and stainless-steel wash basin with a shallow, cast-glass bowl. A penetrating sealer to prevent the slate from staining makes it easier to clean.

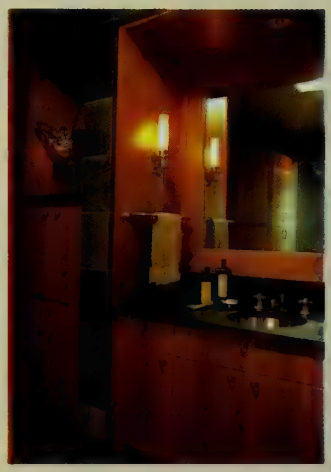
To make the bathroom "more roomlike," says Bertellotti, he designed a large wooden armoire that contains a television for keeping up on the morning news and space for storing towels. This skylit room also has a teak stool, "for polishing your shoes or sitting on while trimming your nails," Bertellotti says, and a handmade wool area rug that stretches between the vanities.

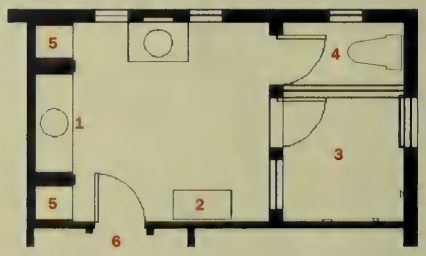
This bathroom has no tub, though other bathrooms within the house do. The owner chose to focus attention instead on the 39-square-foot, two-person shower. It includes a standard showerhead, as well as six therapeutic body jets aimed at different areas of the user's body. Across from this is a "rain shower," a 10-inch-diameter showerhead that drenches a second user with a concentrated gush of water.

Advanced lighting controls play an important role in this bathroom. Various preprogrammed lighting scenes, controlled by a small, unobtrusive keypad at the entry, use an array of fixtures, many of them custom made, and light levels for different effects. For example, a spotlight shines on the glass sink, and ceiling lights, illuminating the panels that make up the shower stall, make its glass glow.









1. *Vanity*
2. *Armoire*
3. *Multi-head shower*
4. *Toilet area*
5. *Storage*
6. *Master bedroom*

alternative, although they tend to turn on even if someone steps into the room for a moment. The best solution is often the garden-variety, spring-wound timer on the light switch. Fan America, of Sarasota, Fla., makes a fan that removes toilet odors at the bowl. An exhaust plate mounted to the toilet behind the seat attaches to a hose leading to a 1¼-inch PVC pipe in the wall. The pipe is connected to a remote-mounted ventilation fan.

Keeping warm

Hydronic heat, which produces warmth by circulating heated water through tubing beneath the floor, is a good choice for a master bath, particularly when the floors are tile or stone. This system keeps bathers' feet [illegible] thermal stratification in the room's air mass, and, unlike [illegible] does not set up drafts. Also, unlike radiators, [illegible] take up valuable space. "It's the most even, com[illegible] use," says Christopher Dallmus, AIA, of Design Associates Inc. in Cambridge, Mass. "And because you can't see it, it has no architectural limitations."

Hydronic heating and its controls are becoming increasingly sophisticated. While older systems used mixing valves to bring boiler-heated water to the correct temperature, newer systems use injection mixing with a pump that introduces the proper amount of cool water into the system. Coupled with accurate controls, of heat delivered matches the amount of heat lost by the room. The result: even temperatures. As Ted Lowe, president of the Radiant Panel Association, puts it, "The best analogy is the steadiness created by cruise control in a car."

Radiant tubing can also be installed around the edges of a stone, tile, or concrete tub. It's a technique Margaret Helfand, FAIA, of Helfand Myerberg Guggenheimer in New York, uses to keep bath water and tub walls warm. "It is one of those details you learn, from experience, that makes homeowners feel pampered."



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CASE STUDY

Project: *Private residence, Fairfax, Vt.*
Architect: *Thomas N. Fox, Jeffrey Diehl, New York City*

The 200-square-foot bath in this secluded house in rural Vermont makes good use of limited space. It's organized into a sequence of compartments: sink/toilet, tub/shower, dressing, and laundry areas. The sink and toilet area does double duty, serving as the hall powder room and part of the master bathroom. Sliding doors let the homeowners, a retired couple, combine or divide the compartments.

The spaces are serene and minimal, though the architects are quick to point out that they were not striving for a minimalist aesthetic. "We wanted background materials that didn't call attention to themselves."

The floors are a mixture of white portland cement, white sand, and aggregate. They were trowelled repeatedly over a period of several days to achieve a finish that, Diehl says, "feels like a wood floor, neither slippery nor rough." It was also topped with a clear sealant to make cleaning easier.

The pool-like tub, made of the same concrete with a waterproofing admixture, measures 2½ by 5½ feet and is 20 inches deep. The back is sloped for comfort. The adjacent shower drains into the tub.

A 12-inch-wide ledge rims three sides. Radiant-heat tubing, used throughout the house, runs behind the ledge, to warm the water and tub walls. On the fourth side, the ledge widens to accommodate steps into the tub, and to support a rectangular box of white Vermont marble. The box separates the tub and shower areas, houses the plumbing controls, and serves as a bench or a surface for toiletries. When the tub is full, the box appears to float in the water.

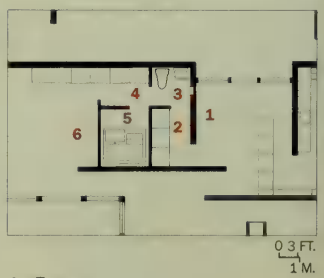
The walls of the tub/shower compartment are ¾-inch Italian green glass tile. The rest of the walls are richly textured pebble dash.

As a counterpoint to the contemporary home's angularity, the architects included what Fox calls "a secondary system of round elements," consisting of round switch and cover plates. The bathroom also includes four translucent 3-foot-diameter circular skylights, bringing light to each of the compartments. A small aluminum gutter around each oculus captures condensation and conducts it into plumbing drain. Ventilation grilles are also hidden in the skylight wells.









1. *Entry*
2. *Laundry/coats*
3. *Toilet/sink*
4. *Dressing area*
5. *Tub/shower area*
6. *Master bedroom*

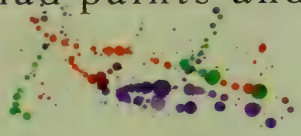
A radiant system is not always possible on a remodel. One alternative is to embed ⅛-inch-thick electric mats in mortar beneath the tile, to warm the floors. These mats won't heat a room, but they make it feel more comfortable. Todd Bertellotti, AIA, of GGLO Architecture and Interior Design in Seattle, used heat mats beneath the slate floors throughout the Grinstein home's bath (page 150), even in the shower area. These mats operate on a timer—they start heating about 30 minutes before the owner awakens and automatically turn off mid-morning. The mats are reasonably efficient; heating the floor of a 100-square-foot bathroom for four hours per day consumes about one kilowatt-hour of electricity. They are available from many companies, including DK Heating System in Wood Dale, Ill., and Easy Heat in New Carlisle, Ind., in a range of standard and custom sizes or shapes.

[illegible] hydronic towel warmers, available from Colchester, Vt.-based Myson and Ward Hill, Mass.-based Runtal USA, also keep bathers more comfortable. Although hydronic models are permissible, electric models must be installed outside of wet areas such as the shower stall. Bertellotti powers them with small, on-demand water heaters, such as those made by Laing Thermotech in San Diego. These water heaters are useful for powder room sinks far from plumbing supply lines.

A lighting plan

The master bath has evolved into a multi-use area with a steam room, jetted tub, dressing area, even exercise equipment. "As a result, we want as much ambience in the master bath as in other parts of the house," says Randall Whitehead, a San Francisco lighting designer. Ambient light bounced off the ceiling minimizes shadows. Whitehead favors coves, opaque wall sconces, and pendant fixtures with solid dishes that direct the light upward. All ambient bath lighting should be dimmer-

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controlled. "There are times you want the light low and times you want it at maximum," he says.

For task lighting around the mirror over the sink and at a makeup area, Whitehead suggests cross illumination, or an eye-level luminaire at either side of the mirror. This positioning provides even lighting for both sides of the face and minimizes shadows. If the mirror is wide, he recommends slipping a third fixture in the middle of its expanse.

Some new lighting products make it easier to illuminate the bath. Philips Lighting, in Somerset, N.J., introduced a dimmable compact fluorescent lamp called the Marathon Line (formerly the Earth Light). The 23-watt, 2,700-degrees-K lamp can be dimmed with a standard household dimmer. Iris Lighting Systems (a division of Cooper Lighting in Deerfield, Ill.) has the only recessed, dimmable low-voltage fixture for wet locations, such as showers (the N3/MRAASR/C).

Luscious surfaces

"Think stone," Mullman says. "It's dramatic because it's unusual in the bath." Some types are more serviceable than others. Granite and slate are dense and stain-resistant, but softer stones, such as limestone, are also fine, though they need to be protected with a penetrating sealer, because large pieces of polished stone are too slippery for flooring. Mullman uses many small pieces with sizeable grout joints. The same is true of ceramic tile; even the skidproof variety is slippery if the tiles are large without grout joints to provide a gripping surface.

Glass tile is popular, but Mullman has seen it fog when not applied carefully—water slips through the mortar and is trapped. Mosaic glass or ceramic tile presents problems, as well. The quantity of small pieces increases the likelihood of one coming loose. Also, these tiles often have no trim or corner pieces, creating rough edges and unsightly grout joints.

Space planning

A good master bath design is part of a good overall house plan. "You have to think of the relationship of the bath entry to the other spaces in terms of privacy and view," says Christopher Dallmus, AIA, of Design Associates, Inc. in Cambridge, Mass. "You shouldn't look up the stairs or down the hall into the bath. Nor should you look into the bath and see the toilet. It should be tucked behind the door or in its own compartment."

A large master bath is not always best. The proliferation of oversized bathrooms shows a lack of environmental sensitivity, creativity, and ingenuity, says Margaret McCurry, FAIA, of Tigerman McCurry in Chicago. Even a bath that can serve a couple need not be huge. "Some couples like to talk to each other at the start of their day, to exchange plans," she says. Providing a secondary means of egress is one way to ease traffic congestion. A two-person shower with two entry points is also convenient. Putting the toilet in a separate room allows others access to the sink and bathing area.

Increasingly, bath components are integrated into other spaces. "The master bath doesn't have to be so traditional: two sinks, tub, shower, and toilet all in one space," says Thomas Fox, an architect in New York City. Rather, these areas can be compartmentalized or even brought into other rooms—a jetted tub in the bedroom, or a sink in the dressing area. And many people are foregoing the tub and allocating more space to a shower, sometimes with multiple shower heads.

Men and women use the bath differently, and standard dimensions don't account for the differing needs between genders. For example, to apply cosmetics, women need to get close to the mirror, but the typical vanity is too high for them to do this comfortably. One solution is differently sized vanities. In the Grinstein bath (page 150), Bertellotti made the man's sink 40-inches-tall while the



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CIRCLE 59 ON INQUIRY CARD

woman's is 34-inches-tall.

But perhaps the biggest change in bathroom planning is the increased need for shelves, cabinets, drawers, and other storage areas for toiletries. "A little medicine cabinet over the sink used to suffice," he says. "But it won't hold three containers of bandages, eight kinds of aspirin, six shampoo bottles, conditioners, rinses, sprays, mousses. It's nutty."

He suggests scaling the amount and type of storage to the occupant's size, age, and gender. Families with young children don't need as much space as those with teenagers, particularly teenage girls, who require a lot of shelving near the shower. Elderly occupants often want space for medications. Many women use drawers for cosmetics. Men often like a shelf in the shower for shaving supplies.

Safety first

But, beyond all the possible glamour or luxury of the bathroom, it is also the most hazardous place in the house. Codes provide basic safety guidelines—light fixtures near wet areas must be moisture-proof, shower doors must open out to prevent trapping someone who falls in the shower, and electrical outlets near wet areas must have ground fault circuit interrupters. By understanding the elements of design, an architect can make a bath safe. Some other considerations:

- Shower doors must be tempered glass, and some architects also specify the material for windows surrounding the tub or shower as well. A seat in the shower makes it easier for someone with any type of infirmity, from a heart condition to the flu, to wash safely. Many architects also install grab bars, even when they are not required.
- Shower controls should be easy to reach and operate from outside the stall so that the temperature can be safely set before the user steps in.
- Stairs are not a good idea in the bath, particularly around a tub. Standing up quickly after a hot bath often makes people lightheaded and in no condition to negotiate steps. If steps are necessary, provide a handrail, even with only two or three stairs.

Safety in the bath is governed by common sense. "Any architect knows a tub that's tall and difficult to get into is treacherous," Mullman says. "One has to assume that most people will be careful. Even if you don't design baths everyday, you know that safety matters more than looks." ■

THE BATH SPECIALISTS The National Kitchen and Bath Association (NKBA) is a trade organization for manufacturers of kitchen and bath supplies. The group also trains and certifies people to design these spaces. Certified bath designers, or CBDs, often work for bath showrooms or design-build remodelers, who seldom charge for bathroom design services if the client buys their products or has their company remodel the bath. Architects may find themselves competing with CBDs, who are likely to charge much less. Architects may also be asked to work with CBDs at the request of the owner, manufacturer, or showroom personnel, so it's wise to understand who CBDs are and how they work.

CBD training includes a minimum of seven years of experience or a combination of education and experience. At least three of those seven years must be spent in full-time bathroom design. CBDs, who often have a design background, must also take a written test and a practical exam, which includes designing a floor plan, mechanical plan, and a design statement outlining the strategy behind the design.

Much of the preparation for the exam is in understanding the NKBA's *41 Guidelines for Bathroom Planning* (www.nkba.org). These enumerate standard heights, dimensions, and clearances for nearly anything installed in a bathroom, including doors, counters, grab bars, and toilets, and offers a good indication of standard industry design practice.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Mastering the Master Bathroom" using the learning objectives provided.
- Complete the questions below, then check your answers [page 212].
- Fill out and submit the AIA/CES education reporting form [page 212] or file the form on ARCHITECTURAL RECORD's Web site at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. What are some of the new features available in toilets?

2. [illegible] new water-control products and valves available for

3. What are the considerations for venting in a master bathroom?

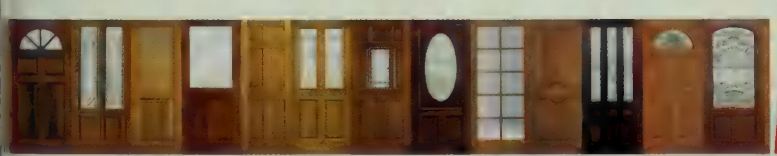
4. What are the advantages of using hydronic heat in the bathroom?

5. What are the goals of lighting and space design in master bathrooms?



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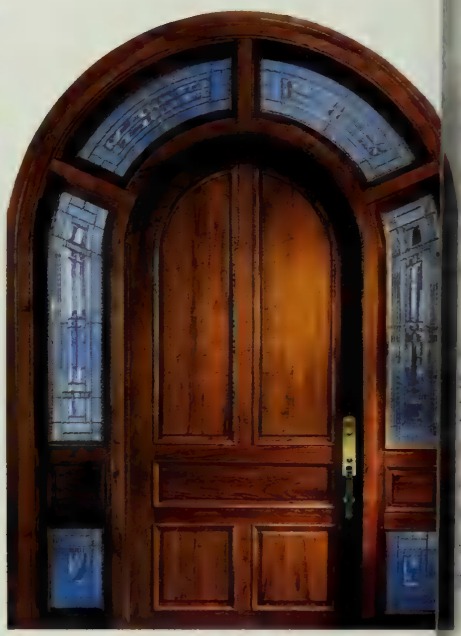
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JELD-WEN PRESENTS







Handcrafted Entry Doors:

The Unique Specifications of Decorative Wood Doors

Handcrafted doors are a source of individual expression and beauty in domestic and commercial architecture. In other words, the entry door is an aesthetic statement. Wood, when combined with glass panels, is chosen for its durability, flexibility and thermal properties. And while handcrafted doors may appear similarly built, there are basically two methods of construction. Each is considered by its proponents to be the stronger structurally. Yet the internal configuration—and the cost of the doors—vary considerably. So, too, does the type of wood species used—and ultimately the design and construction, important nuances to be aware of when choosing a handcrafted door or custom designing one.

All doors manufactured in the United States must meet the rigorous standards set out in the American Architectural Manufacturers Association's standard 101/I.S.2-97. The standard targets the performance of windows and doors regarding structural adequacy to withstand wind loads, resistance to water leakage, resistance to air infiltration, and forced-entry resistance. Just knowing that all doors meet these standards, however, tells you little about their internal makeup.

Obviously, a handcrafted door differs from an engineered, machine-made door. Handcrafted doors generally offer a much greater aesthetic appeal—more style, more wood overlays and detail, more woodcarving, more glass. Differences exist, however, in types of wood used and how that wood is put together—not just between handcrafted and manufactured doors, but among handcrafted doors themselves.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read *Handcrafted Entry Doors: The Unique Specifications of Decorative Wood Doors.* To earn one AIA/CES Learning Units including one hour of health safety welfare credit, answer the questions on page 164 and follow the reporting instructions on page 212. Or use the Continuing Education self-report form on *Record's* Web site—www.architecturalrecord.com.

- application and exposures for
- characteristics of wood affect and sound transmission.
- and maintenance of
- add value to a project.

MATERIALS–WOOD

Depending on the type of construction, handcrafted wood doors are made from a variety of hardwoods or softwoods. Here's a review of the basic characteristics of wood.

As a material, wood is highly versatile due to its botanical structure, composition and properties. It has high strength in relation to its weight, high heat and electrical insulating properties, and desirable acoustical properties. In addition, wood imparts a feeling of warmth not possessed by other materials, such as metals or plastics.

On a microscopic level, wood is composed of minute cells. One cubic meter of spruce tree, for example, contains 350 billion to 500 billion cells. Depending on the type of wood, cells come in different sizes and shapes. The cells of softwoods are called tracheids and parenchyma and those of hardwoods, vessel members, fibers and parenchyma. Almost all wood cells, even in living trees, are dead; that is, devoid of protoplasm and nucleus.

The structure of wood with regard to cellular composition and arrangement varies among species and this influences appearance and properties. Other variations in appearance are made by characteristics such as knots, spiral grain, compression and tension of the wood, shakes and pitch pockets.

The warmth of wood is due to millions of small honeycomb cells between the fibers, providing a high percentage of dead air volume—an excellent insulator. The minute cells that wood is made of absorb water, making wood hygroscopic. Moisture affects all wood properties, and manufacturers of wood products strive to ultimately protect wood from excessive mositure gain. Manufacturers kiln-dry the wood to bring the moisture content between 8 percent and 12 percent. This ensures optimal machining during the door-making process, eliminates opportunity for decay and fungus buildup, and increases its strength and decreases dimensional changes. Drying is accomplished in the open air or in specially constructed kilns. Kiln-drying can be controlled and is often preferred.

Wood is not merely a natural insulator—it is actually 400 times more effective than steel and 1,800 times more effective than aluminum, according to WDMA sources. This is why thermal bow is significantly less of a problem with wood than steel or fiberglass. For example, if it's 0°F outside and 70°F inside, the steel on the outside of the door will shrink while the steel inside the house will expand. This puts uneven pressure on the internal wood frame and the door will deflect. However, moisture does influence wood more than steel. Therefore, it is essential to properly seal all six sides of a door to prevent moisture penetration. In humid climates, overhangs further help protect doors from moisture.

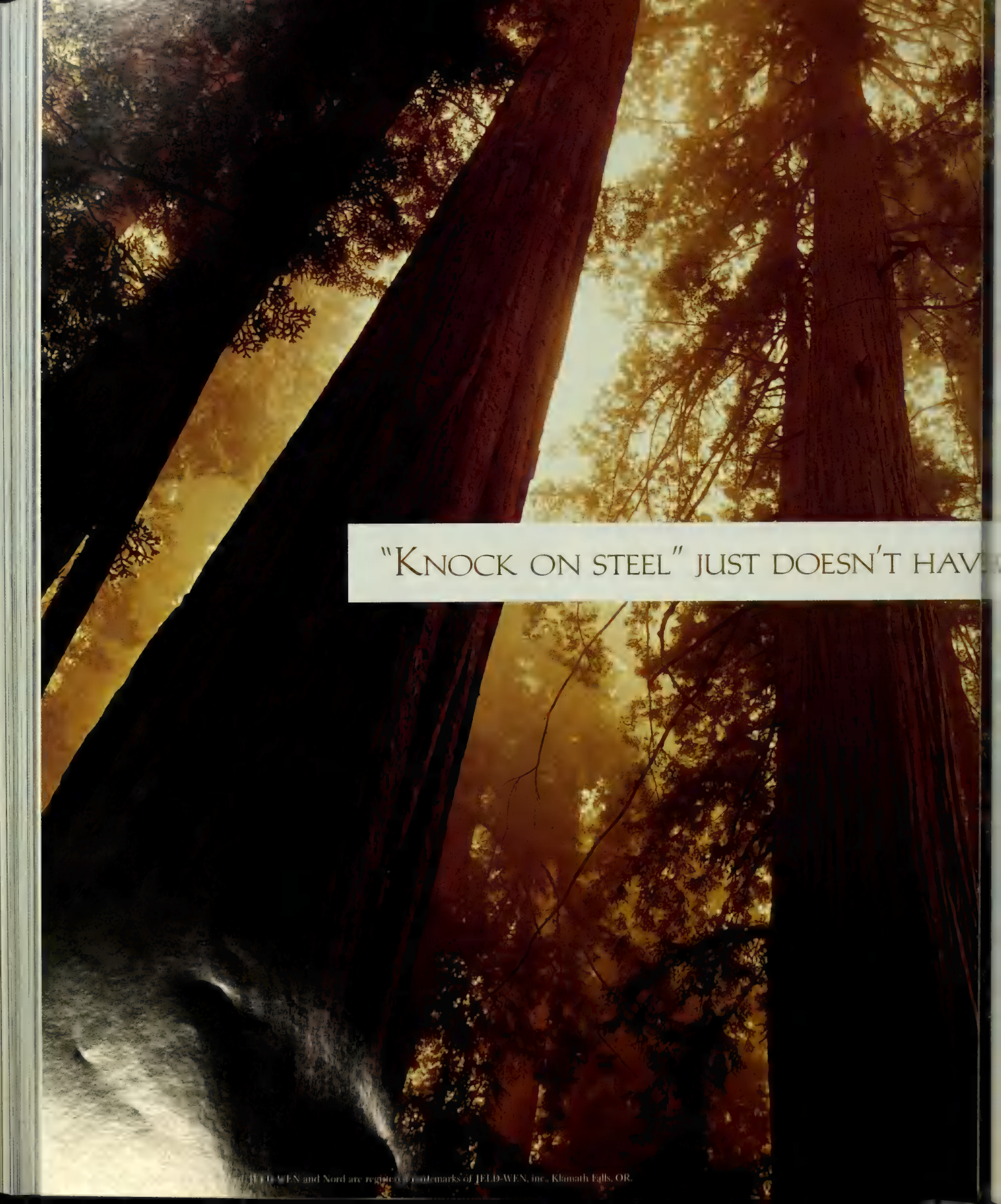
Regarding sound transmission, a wood entry door typically has an STC rating of 31. A typical insulated steel door has an STC rating of 21 and a hollow core flush door an STC rating of 21. To put this in context, this rating means that the noise transmitted through a hollow core door is approximately 100 percent louder than it would be if the door were solid wood.

Also of importance is proper finishing and preservation techniques.



CONSTRUCTION–GLASS

Part of the aesthetic statement of handcrafted doors is the glass treatment. Many different patterns, textures and colors are offered in glass that has been rolled, pressed or hand blown. Industry standards strictly regulate the use of safety glass to comply with ANSI-Z97.1, unless stated by the manufacturer. Caming is the bonding material that fuses glass pieces together. Glass can be single-bedded or double-bedded; that is, i.e., glazing compound can run around the rabbet face or around both sides of the glass to secure the glass in position and to protect against moisture.



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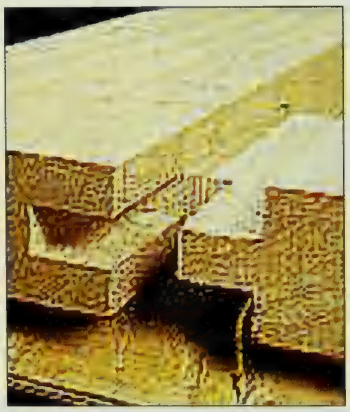
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CONSTRUCTION

In today's market, consumers have a wide variety of door types to choose from including architectural flush doors, which may have solid or hollow cores, or stile and rail doors which may have veneer facing or may be of solid wood.

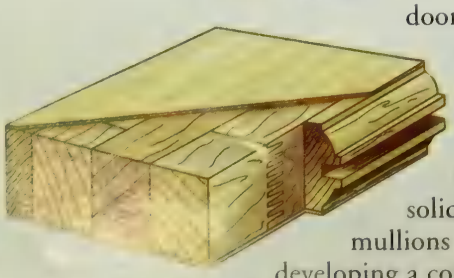
Solid Wood. Because of the high cost of wood, solid wood doors are being marketed mostly as handcrafted entry doors. Manufacturers generally offer premium woods such as northern red oak, genuine mahogany, black cherry, black American walnut, alder, or maple. One could argue that the solid wood door has a much richer quality than a veneered door. And makers of solid wood doors say the mortise and tenon joint construction used is the strongest structural method.

Hand-crafted doors offer the widest size range—some measuring as much as 42 inches by 92 inches. The doors weight can be 150 pounds to 200 pounds. There can be a lot of pressure on the door jambs.

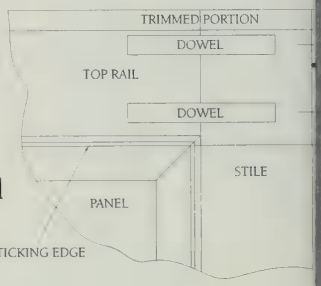


Solid wood doors use a mortise and tenon joint construction (see drawing), the oldest known type of wood joinery. Pieces are cut to be joined male/female and then securely hand-fitted together. This construction is reported to be seven times stronger than dowel construction. If twisting of pieces or flaws are present or an error has been made in matching the wood, the questionable pieces are discarded. The pieces are then bonded with Type I waterproof glue and the door is placed in a hydraulic press until the glue dries. Solid wood doors also allow for intricate hand carvings by wood craftsmen.

Veneered Components. Other specialty wood entry doors use veneered wood components that are designed to reduce chances of delamination, splitting and warpage and are thought to be stronger than solid wood. Stiles, rails and mullions are constructed by first developing a core of finger-jointed and edge-glued material to which solid edge bands are applied (see drawing). The offsetting grain patterns of the substrate that is considered by some to be more stable than solid wood by itself. The veneers are sliced and laminated to the substrate.



With veneered components, a dowel construction is used. In this method (see drawing below), stiles and rails are joined by spirally fluted hardwood dowels. The fluting facilitates the glue spread (Type I glue) and results in a stronger door. Also, the glue area is increased over that of a solid wood door resulting in greatly reduced incidence of stile and rail separation and a tighter, stronger door.



Regardless of the internal construction of the door, wood is a material that is easily customized at the plant. Wood can be cut to odd sizes, it can be designed with unique panel formats, and it can be hand carved by craftsman. It is also flexible on the job site. If a door opening isn't exactly square, the wood door can easily be planed. Many wood doors can be cut up to two inches at the end at the job site to account for irregular openings or last-minute changes.

Handcrafted wood doors are carefully inspected throughout the entire manufacturing process and, therefore, typically achieve a level of quality machine-made doors can not.

SANDING AND FINISHING



The care given to sanding and finishing a handcrafted door adds to its longevity and beauty. Check with the manufacturer to see if the door can be sanded and finished at the factory. This can provide the superior finish, but is not always available. Most often the finishing is up to the installer.

A typical finishing sequence would adhere to the following instructions:

- To assure uniform moisture exposure and dimensional control, all surfaces must be treated equally.
- Before applying the first finishing coat, remove all handling marks, raised grain, scuffs, burnishes and other undesirable blemishes by block sanding all surfaces in a horizontal position with 120–, 150–, or 180–grit sandpaper. To avoid cross-grain scratches, sand with the grain.

- After sanding, clean the entire door with a cloth, removing all dust and foreign debris. (Avoid caustic or abrasive materials.)
- A thinned coat of sanding sealer should be applied prior to staining to promote a uniform appearance and avoid sharp color contrasts or a blotchy appearance.
- All exposed wood surfaces must be sealed, including top and bottom rail ends. Cutouts for hardware in exterior doors must be sealed prior to installation of hardware and exposure to weather.
- If necessary, adjust components before finishing. (Wood panels can float.) Carefully realign with wood block and hammer.
- Before finishing, hang the door. Then remove it to finish properly. Door must be dry before finishing.
- Certain species of wood contain chemicals that react unfavorably with some finishes or foreign materials in the finishing system. Where possible, test your finish prior to application. Do not use steel wool on bare wood and avoid rust or other possible sources of contamination.
- Avoid dark-colored finishes if the door is exposed to direct sunlight. This will reduce the chance of warping, veneer checking or fading.
- Doors with clear glass require special care. Finish should flow from wood slightly onto glass to prevent water leakage and protect glazing putty.
- Oil-based sealers for prior coats provide the best base coat for finishing. If a water-based primer is used it should be an exterior grade product.

Proper installation of the door is also recommended with clearances between door edges and door frames a minimum of $^{1}/_{16}$ inch on the hinge edge. For a latch edge and top rail, the clearance should be $^{1}/_{18}$ inch. ■

CUSTOM DESIGN CASE STUDY

Manufacturers of handcrafted wood entry doors offer uniquely designed doors. Architects can work with company representatives to custom design doors. The doors are "signature" elements in housing or commercial designs. Wood and architectural craftspeople such as architectural glass designer Shelley Jurs may be involved in the design process. One of her glass door designs for International Wood Products is shown here. After 20 years in the business, Jurs suggests that when designing a door it is most important to incorporate structural concepts into the glass design—to be aware of the door's stability and tolerance characteristics, while taking into account the overall aesthetic appeal. Jurs, based in Oakland, California, incorporates rolled and poured glass and also likes to use hand-blown French and German glass known as pyramid shapes.



JELD-WEN

Founded as a small millwork plant in Oregon in 1960, JELD-WEN today is one of the world's largest manufacturers of doors, windows, millwork, and specialty wood products. Three of its subsidiaries manufacture handcrafted wood entry doors: *IWP®, Morgan® and Nord®.*

IWP: Since 1965, International Wood Products has earned a solid reputation among homeowners, architects and builders for creating handcrafted mahogany, oak, maple, walnut and cherry entry doors. Every door is meticulously handcrafted and can be custom designed. IWP remains committed to developing exceptional new door designs, systems and finishes.

Morgan: Since its inception in 1855, Morgan has been delivering doors of only the very highest quality—doors designed, crafted and assembled with great care to create a world-class product of remarkable beauty. Morgan uses only the highest quality materials throughout. No plastic fillers. No printed veneers. Just real oak, and pine that deliver strength and beauty in a wide selection of designs. Each Morgan® door is testimony to the craftsmanship and value that only wood can deliver.

Nord: Founded in 1825, Nord makes doors that complement the personal design of one's home. Intricate designs are crafted from fir, hemlock and oak for exterior and interior uses. Nord offers a variety of wood stile and rail doors, such as interior and exterior entrance doors and bifolds, as well as sidelights and transoms.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION SERIES

Learning Objectives

After reading *Handcrafted Entry Doors: The Unique Specifications of Decorative Wood Doors* you will be able to:

- Describe the proper application and exposures for wood doors.
- Explain how the natural characteristics of wood affect strength, energy efficiency and sound transmission.
- Describe the proper finishing and maintenance of wood doors.
- Explain how wood doors can add value to a project.

Instructions

Refer to the learning objectives above. Complete the questions below. Then turn the page upside down and check your answers. Fill out the self-report form 212 and submit it or use the Continuing Education self-report form on the *Record's* Web site —www.architecturalrecord.com—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:

1. What is the benefit of wood's honeycomb cell structure?

2. What are the benefits of finger jointed and veneered door components?

3. How can wood doors offer greater perceived value to a building project?

4. What is necessary to ensure a long life of a wood door?

5. Why is drying an essential preparation of lumber?

ANSWERS:

1. The honeycomb structure traps dead air. Dead air is what makes wood a natural insulator and prevents it from easily conducting heat or cold. This means wood will not significantly contract or expand with the environment's temperature fluctuations. Door surfaces contracting and expanding at different rates is what causes thermal bow.

2. The offsetting grain pattern of the individual pieces of wood produces a stronger, more stable overall unit. This is because the grains are multidirectional and will not all bend in the same direction. Instead, the minor dimensional changes offset one another and tend to "even out." The veneer gives it the appearance of a single piece of wood, which is aesthetically more appealing.

3. Wood doors are aesthetically more appealing because there are more styles to choose from. Because of the way wood doors are made, architects have more options to customize to suit the project's interior and exterior. Wood grain is what most products made of alternative materials are striving to emulate. The risks of denting, thermal bow or excessive sound transmission are significantly decreased.

4. It is necessary to use exterior grade materials when applying the sealer and finish to the door and always include a base coat and top coat. It's important that the finishing contractor or homeowner seals all six sides of the door the four edges, the interior surface and the exterior surface.

5. Controlling the moisture content is important for wood to perform at its best. If the wood is kiln-dried and contains a moisture content between 8 percent and 12 percent, it helps to eliminate the opportunity for decay and it decreases the possibility of dimensional changes. It also helps manufacturers machine the wood components more precisely, which improves the overall accuracy and integrity of the finished door.

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*Life Cycle Cost Study, 1995 Ducker Research Company

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Tech Briefs

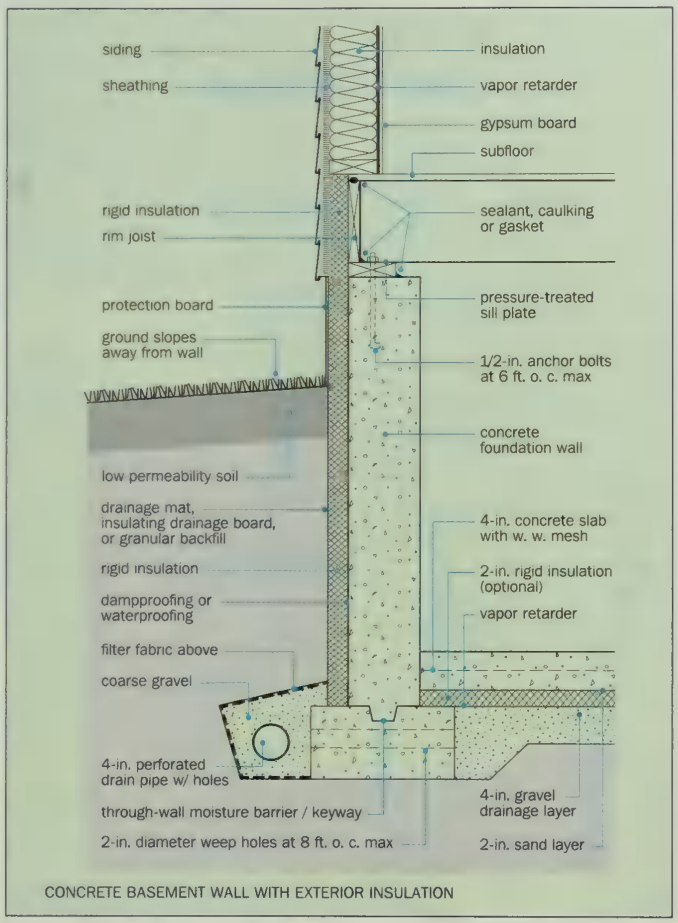
• Getting moisture out of the house, particularly the bathroom, requires careful construction details. • CAD systems from overseas are changing the U.S. market.

CONTROLLING INDOOR MOISTURE IN ENERGY-EFFICIENT HOUSES

Although new houses are more energy-efficient than ever, their tightly built walls can reduce natural ventilation. An older house, one built before the 1970s energy crisis, may have three to five air changes per hour due to leaky walls, while the air replacement rate in an energy-efficient house is as low as one-half of an air change per hour.

Consequently, water vapor generated by occupants and released from other interior sources lingers longer and builds up. It is no surprise then that the owners of new houses complain of window condensation, mildew and mold growth, and rot within the walls—all within a few years of construction.

Even though both the cause and means of preventing moisture buildup are well known, the number of affected houses continues to grow. To some extent, homeowners are also responsible; some of the water vapor released inside a house is due to homeowner habits. That's because of a lack of vigilance and attention to construction details by architects and builders.



CONCRETE BASEMENT WALL WITH EXTERIOR INSULATION

Sources of moisture

Historically, architects and builders relied upon natural exfiltration of air as a means of controlling indoor relative humidity. Differences in temperature, vapor pressure, and air pressure force air to move through leaks in the walls, foundation, and attic. Warm, moist indoor air is constantly flushed out and replaced with cooler, drier outdoor air. Once inside, the cooler air is heated and its relative humidity lowered, continuing the exfiltration/infiltration cycle.

Sources of moisture include bathing, humidifiers, clothes dryers vented inside, and indoor storage of firewood. Minor sources, such as cooking, houseplants, and even respiration, make a sizable contribution when considered in total. Soil moisture migrating through foundations and floor slabs, and initial and seasonal desorption from building materials comprise other sources.

Whenever warm, moist air strikes windows, walls, and other cold surfaces and is cooled below the dew point, the excess moisture (the amount above 100 percent relative humidity) is deposited as condensation. Water vapor carried inside walls, ceilings, and attics on convection currents of air flowing through joints and penetrations can condense on cold framing and sheathing. Indoor moisture sometimes passes completely through walls, causing exterior paint to discolor or peel.

In northern climates, condensation occurs during the heating and cooling seasons. Its cause is almost always of excessively high indoor relative humidity—more than 40 percent. In summer, water vapor held in hot, humid outdoor air entering the house raises indoor relative humidity and causes condensation on cooler framing and subflooring.

In southern climates, condensation is a problem primarily during the cooling season. Here, the culprit is hot, humid outdoor air, seeping into walls, floors, ceilings, attics, basements, and crawl spaces, then cooled to below the dew point by air conditioning. Framing and subflooring under air-conditioned rooms are especially at risk, as are wall framing and drywall in houses with vinyl wallcoverings.

Different levels of moisture create different types of problems. The amount of moisture needed for window condensation and for growth of non-decay fungi is substantially less than that required by decay fungi. Wood and wood-based products must be wetted by condensation to a moisture content of greater than 28 percent before they will rot. Decay fungi eat the wood itself. Once they are established, these fungi can carry on their destruction at a moisture content as low as 20 percent.

Mildew and mold are non-decay fungi that discolor the surface of wood and wood-based products, but do not cause rot. They grow wherever the relative humidity near a surface exceeds 70 percent. Most often black in color, mold and mildew (caused by two different types of fungi) feed on carbohydrates stored inside wood, on airborne organic detritus, and on the organic ingredients of coatings. Found most frequently in baths and basements, mildew and mold also show up in places with poor air circulation, such as closets. Mildew and mold sometimes form over cold spots created on the inside of walls by framing and other thermal bridges in a house's envelope. Spores released by mildew and mold create the characteristic musty odor.

Basements are worst

Typically, the largest single source of moisture in a house is the soil surrounding the foundation. Water leaks into a basement or crawl space through shrinkage and settlement cracks, joints, utility cutouts, and other penetrations in the walls and floor slab. It can also be drawn

continued from previous page

by capillary action into the pores in concrete or masonry walls, footings, or floor slabs. Evaporating water increases the relative humidity of air inside the basement or crawl space and raises the moisture content of sills, girders, joists, and subflooring to fungi-susceptible levels.

Gross leaks in basements and crawl spaces are usually repaired before damage is done. But most basement and crawl space moisture problems arise because of capillary water and diffusion of water vapor. In most cases, leaks are eliminated by installing perimeter drains, sealing cracks, backfilling with free-draining soil, regrading, installing gutters and downspouts, and dampproofing or waterproofing exterior foundation walls.

Dampproofing is often confused with waterproofing. Dampproofing materials, such as bituminous liquids, cementitious coatings, and surface-bonding mortar, retard vapor transmission and capillary movement of water through concrete and masonry, but are less effective in stopping flowing water. Only waterproofing compounds, such as bituminous and elastomeric membranes, and bentonite coatings, keep water out. Other steps include installing a vapor retarder—8 or 10 mil polyethylene—under the slab or over exposed soil in a crawl space. Rigid foam insulation placed against foundation walls and under floor slabs also blocks capillary and diffusion ingress of water.

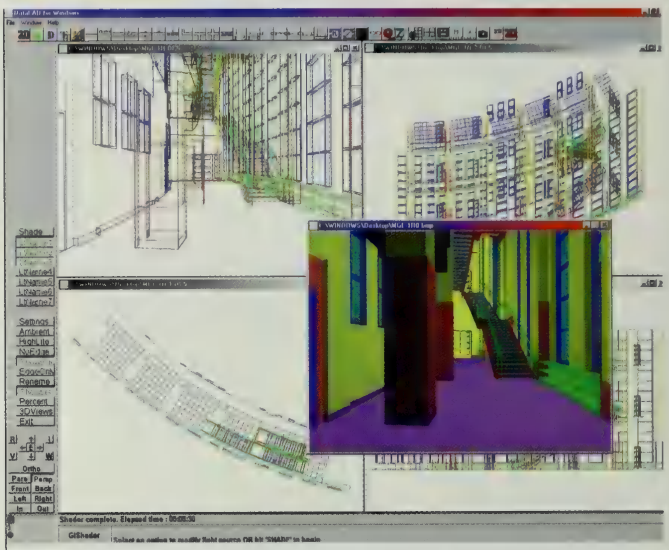
Sills, girders, and other framing members in direct contact with concrete and masonry are especially prone to mildew, mold, and rot because water travels, via capillary action, undetected and unimpeded from the soil through the foundation and into the wood. This can be prevented by creating a "capillary break" of plastic between wood and masonry. The circle of dampness that sometimes shows up around the base of a foundation owes to capillary movement of water from the soil through the footing and up into the wall. This "rising damp" is stopped by placing polyethylene sheeting over the footing before walls are cast or built.

Getting help

A heat-recovery ventilator (HRV) or a humidistat-controlled whole-house fan keep indoor relative humidity below 40 percent in winter. HRVs capture some of the heat from the indoor air that is expelled. Bath and kitchen exhaust fans can be wired to a timer or humidistat-controlled switch. Washington and Minnesota require all new single-family houses to be equipped with mechanical ventilation. A similar nationwide requirement is anticipated by model and state energy codes within a few years.

The effectiveness of dehumidifiers during the heating season is debatable. Most cannot lower indoor relative humidity much below 50 percent, which is still high enough to cause condensation on the inside of windows and walls, and within walls, ceilings, and attics. During the cooling season, however, dehumidifiers are effective at preventing mildew and mold in basements and crawl spaces; they easily lower relative humidity below the 70-percent threshold needed by these fungi.

Attic ventilation should be sufficient to continually flush out moisture-laden air leaking from the living areas below. Continuous soffit and ridge vents work well in most houses. Vents are sized according to ceiling area and roof slope, and installed with half of the net free vent area at the eaves and half at the ridge. Attic insulation should be placed so that soffit vents are not blocked. Ceilings and walls should be fitted with a continuous vapor retarder located on the warm side. All penetrations through vapor retarders should be sealed against air leakage. *Stephen Smulski, Ph.D.*



BUILDING BOOM ATTRACTS NEW INTERNATIONAL PLAYERS TO AMERICAN CAD MARKET; OPENS UP MORE CHOICES FOR ARCHITECTS

Architects in search of greater productivity are turning to more powerful, architecture-specific software. While 2-D CAD automates paper drafting, newer intelligent 3-D CAD creates software models that correspond to real building components. A recent flurry of international alliances will bring not only a smattering of new companies to the States, but also a wider array of CAD choices.

The transatlantic tide peaked recently when Germany's largest CAD vendor, Nemetschek, announced a $30 million acquisition of Diehl Graphisoft Inc., Columbia, Md., the makers of VectorWorks (formerly MiniCAD). The transaction puts financial muscle behind VectorWorks, offering American architects the prospect of a greatly enhanced product. In exchange, Nemetschek gains an American foothold for future product expansion.

Last spring, MB Software of Germany made a $1.25 million strategic equity investment in DataCAD LLC, the Avon, Conn., developer of long-established DataCAD. MB, which acquired many smaller CAD companies in Europe, announced plans to upgrade DataCAD to DataCAD Plus (above), with many added features, while introducing some of its own products, such as its fast and easy ArCom3-D modeler, to the U.S.

When Microsoft acquired its Seattle neighbor, Visio (the makers of IntelliCAD), some observers foresaw a Microsoft invasion of the CAD market. Instead, the company licensed IntelliCAD sales to Belgium-based Bricsnet, who will offer IntelliCAD in the U.S. market as a 2-D complement to its own 3-D Bricsnet Architecturals, introduced last spring.

Not all overseas interest in the American CAD market comes from across the Atlantic. Informatix in Japan acquired the rights to MicroGDS, a Windows-based CAD program with an impressive lineage, from industrial-CAD vendor Unigraphics. It is the successor to the minicomputer-based GDS, which was the successor to the pioneering McDonnell-Douglas CAD system—still considered one of the best CAD programs ever made. Despite its impressive lineage, MicroGDS might have been orphaned in the American market without Informatix's intervention. The Japanese parent continues to upgrade the product for the U.S. market through a U.K. affiliate that had a hand in the original software's development. *Jerry Laiserin, FAIA*



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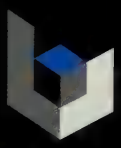
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Digital Architect

Wired for living, houses go high-tech.

By B.J. Novitski

The theater darkens as the projector descends from the ceiling and a wide screen slides into place. Stereo sound envelopes each member of the audience; there's no such thing as a bad seat in this house.

More and more Americans are enjoying such scenarios at home. When Le Corbusier referred to houses as "machines to live in," he could not have anticipated today's upscale houses encased in electronics. With home automation on the rise, there are no limits—except the imagination and the amount of cash the homeowners have—to what could come next.

Designing a house full of automated devices is not much different from designing a house that isn't "wired." Few constraints are imposed by the equipment. And little specialized knowledge is required of the architect because the process can, and should, be acquired through consultants involved from the project's inception. Nevertheless, it's important for the architect to understand the basics of what is possible and to ensure that the client's expectations and budget are consistent.

Residential systems

The systems that can be automated theoretically extend to anything with an electrical switch. But the most commonly automated systems are hvac, lighting, security, audio/visual, telephone, water management, and windows.

Other than home theaters, for example, audio/visual systems include music zoned for each room, ambient sound systems with concealed speakers, satellite dishes, high-definition television, and digital as well as analog video. Complicating this mix are the video games and personal computer networks which are constantly changing and growing in complexity.

Security features include motion sensors that trigger audible alarms, handprint recognition devices that unlock doors, and closed-circuit television cameras that monitor a child's bedroom or playroom, or survey the grounds of an estate. Floodlights and emergency exit path lighting can be coordinated and monitored from a central control point.

How each of these systems is programmed and monitored is likely to affect other systems within the house. For example, the operation of window blinds should jibe with the hvac, lighting, and security systems. It must also be coordinated with the home theater system. Coordinating the input and output of all these different systems is what makes home automation so complex.

Sorting out the options

The most important first step to ensure a successful residential project is to hire the right team of consultants, says James Davidson, AIA, based in Seattle. "Even for architects who are technologically savvy, it's nearly impossible to stay current. Often, electrical engineering firms specialize in networking and audio/visual systems." Other options include asking manufacturers if they are familiar with consultants, or contacting one of the trade organizations to find a list of contacts (see "Home Automation Resources," next page).

Home automation would be simpler if it were only a matter of specifying off-the-shelf systems. Many homeowners already have keypad-controlled burglar alarms, motion-detecting exterior lighting, and remote controls for television. But as the number of such stand-alone systems grows, the difficulty of coordinating them all becomes unwieldy.

Enter the systems integrator. This consultant packages all the input to and output from the myriad systems and wraps them into a single control device that the homeowner can use and modify with little technical know-how. The digital controls of residential systems, particularly hvac, are different from those of commercial systems.

One such systems integration firm is Naperville, Ill.-based ISR Inc. (www.isr-usa.com). They developed TRONARCH, a commercial-grade home management system, consisting of a Windows NT server and custom software to coordinate the operation of all the other systems. Each mechanical or electrical device in the house has its idiosyncratic controller. ISR works with the device manufacturers to translate those controller signals into a digital language that TRONARCH can understand.

By centralizing these communications, the various systems inform each other. For example, the security system, when triggered, can turn on selected lights. The ISR technicians customize the software to cater to the specific needs of the homeowner. They program in, for example, what each system does during vacation mode or how the house reacts when in "welcome-home-from-work" mode.



Native stone and heavy timber belie the technology, including special lighting and music controls, in this house designed by Lundahl & Associates.

A complicated combination of such settings plus manual overrides can then be programmed into a few buttons on the users' control devices. These can be wall-mounted keypads or touch-screens, computer terminals, or wireless remote controls. What the homeowner sees is small and simple.

THINK OF A HOME ELECTRONIC SYSTEM AS A LOCAL AREA NETWORK—EVERYTHING TALKS TO EVERYTHING ELSE.

Design implications

How do all these high-tech systems affect the design of a house? Not at all, says Jeff Lundahl, AIA, of Lundahl & Associates in Reno, Nev., "except that you can eliminate some of the wall switch clutter."

In a recent house overlooking Lake Tahoe, built from traditional materials, Lundahl successfully blended a rustic design with embedded and largely concealed technology. "As long as these systems are planned early and the various consultants are coordinated," he says, "the design of the house is fairly independent of the hardware demands. We haven't approached the design as a way to celebrate technology. We've exploited technology as a way to celebrate architecture."

This approach to techno-sensitive design is seen, for example, in the unobtrusive lighting systems that accent the native stone and heavy timber structure.

The only unusual spatial demand of automation hardware is a centralized equipment room. Its size depends on the size of the house and the extent of its systems, but generally, this room should be big enough to walk around in, have ample equipment racks, sufficient headroom, and adequate ventilation to dissipate the equipment-generated heat. For the convenience of the systems integrators, the space should be the single entry point for all the utility systems. All wiring should run from there to the rest of the house.

As for access panels in the rest of the house, Davidson recommends at least one per room. "Everywhere you used to put a phone jack, now you put a connectivity panel that has Ethernet and coaxial cabling," he says. "And, if you want to be exotic, include fiber-optic cable. That will provide just about any capability you can imagine." With wireless transmitters, some of these panels could be eliminated altogether, further opening design options.

Coming soon

At the Massachusetts Institute of Technology's Media Lab near Boston, researchers are developing "smart rooms." Just as current security and hvac systems take input from motion and temperature sensors, future systems will sense other kinds of data from a room's occupants. Biosensors will be able to transmit health-related data about elderly shut-ins, for example. Transmitters built into the product codes in the grocery store will automatically order new supplies when necessary.

Making this possible, perhaps soon, is the unifying standard of Internet protocols. The same computer language and communication protocols commonly used now for the Web and e-commerce are also key to centralized home-management systems like TRONARCH.

Davidson explains that home automation devices are now built with the ability to tie directly into the Web. "Once you think of your home devices as a local area network," he says, "where everything talks to everything else, the opportunities for creativity are endless."

One MIT research project involves a house that can track a storm, protect itself from the storm, and, if necessary, repair any damage that's done. This "Home of the Future" project will also feature appliances that "speak" to each other to make sure the occupants never run out of hot water, for example. These appliances could also upgrade themselves. Smart walls could filter out annoyances, like car alarms, but admit bird songs or the sound of falling rain.

Davidson concedes that we're still far from the day when integrating all these technologies will be easy. For now, architects with a good understanding of computer networks are at an advantage in understanding these systems. Still, with the right consultants handy, home automation is within the grasp of any architect, and easy to use, even for those who never mastered programming the VCR or the coffee maker. ■

HOME AUTOMATION COSTS

THE NUMBERS INCLUDE MATERIALS AND LABOR, THOUGH LABOR RATES VARY BY LOCATION

SYSTEM	HOUSE SIZE		
	10,000 SQ. FT.	10-20,000 SQ. FT.	20-30,000 SQ. FT.
CLIMATE (ZONES, HUMIDITY CONTROL, OUTSIDE MONITORS, SENSORS) COST	$10,500	$26,000-75,000	$90,000
LIGHTING (CONTROL STATIONS AND PANELS) COST	$35,000	$81,000	$104,500
SECURITY (MULTIPLE INPUT/OUTPUT POINTS) COST	$9,500	$29,500	$55,500
CCTV	$9,500	$29,500	$38,000
DISTRIBUTED AUDIO (200-DISC CD PLAYER, TUNER, CASSETTE PLAYER WITH ZONES AND KEYPADS) COST	$19,500	$59,500	$85,000
HOME THEATER COST	**MEDIA ROOM** $48,000	**THEATER** $65,000	**ENHANCED THEATER** $148,000
[illegible] NSIONS, AND DATA JACKS)	$12,000	$27,000	$34,000
[illegible] NAGEMENT	$3,500	$8,500	$14,000
	$11,500	$22,500	$50,000

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Michael Graves: Man of the House



TOASTER, Target

By Rita F. Catinella

Michael Graves, FAIA, one of the most well-known architects in the world, has brought a spectrum of products—from jewelry, lighting, kitchen accessories, picture frames, furniture, and dinnerware—to households of every tax bracket and design taste. His designs for Alessi, The Walt Disney Company, Target, and others, have literally made Graves a household name. We caught up with him recently at his Princeton, N.J., office. During our visit, his design staff was working on a range of products, from an alarm clock/radio for Philips, to a new line of products for Target, including a counter-top bagel holder, a line of barbeque tools, and a set of playing cards.

Q: You are an architect, but you spend about 40 percent of your time designing products. Isn't it strange to make such a commitment? When I was growing up in architecture school, my heroes were people like Charles Eames, Le Corbusier, Frank Lloyd Wright, Eero Saarinen, Mies van der Rohe; in other words, without any style inference. All of those people were engaged in production of not only architecture, but of things that would make the character of the room: the furniture, the carpeting, the lighting. I always thought that's what architects did. I get great joy out of making things and I never thought that stopping at the door or the surface of the building was what I was interested in.

Do you think the influx of affordable, high-design products for the home, such as those from Target, Pottery Barn, and Ikea, has elevated public taste? Think about what has happened to all facets of design in America, from automobile design to clothing design, and ultimately to products and architecture. It's a kind of a "Gapping of America." You probably don't go to Bloomingdale's to buy blue jeans or T-shirts when a store like the Gap sells a cotton shirt for $9.95. That has allowed the Pottery Barns, Pier 1s, and Crate & Barrel to have an influence on taste.

How has this affected your personal experiences as a consumer? When I was growing up in architecture in the '50s I couldn't buy a white plate—that's what I thought was modern—and I went to a flea market and bought a set of plates from the Naval Academy that had the anchor on the backside. And I thought, *why can't we buy this*? I was a kid, so I couldn't go out there and say *let's make this and sell it in the marketplace.* Of course, as one of our product clients says, if I need something, probably 1,700, or even 17 million people in the United States need it too. Today, you can walk into Crate & Barrel or Pottery Barn and find almost anything you want, for a range of tastes. That's pretty amazing. So I think that was really the beginning of bringing that level of taste—high, low, middle—to all the rest of us.

Is there really a link between product design and architecture? I don't think it's odd for an architect, even an architect whose primary interest is architecture and not product design, to do products. After all, most product designers in Europe are trained as architects. It's very hard to find one who has gone just to a design school. They value the people who are absolutely literate in the culture and understand the way metaphors and ideas are transmitted.



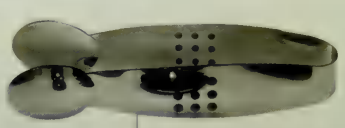
Dorothy teakettle for Target, 2000



Glass carafe and cup for Target, 2000



Blender for Target, 1999





Kitchen gadgets for Target, 1999

GRAVES PORTRAITS: ANDRE SOUROUJON. PRODUCT PHOTOGRAPHY: COURTESY OF MICHAEL GRAVES & ASSOCIATES



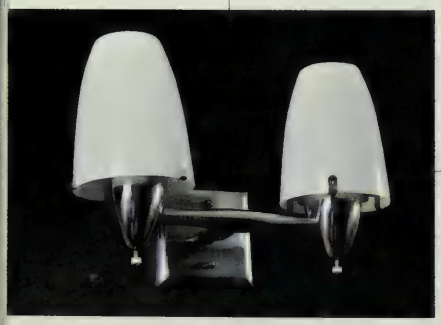
Pepper mill and salt castor
for Alessi, 1993



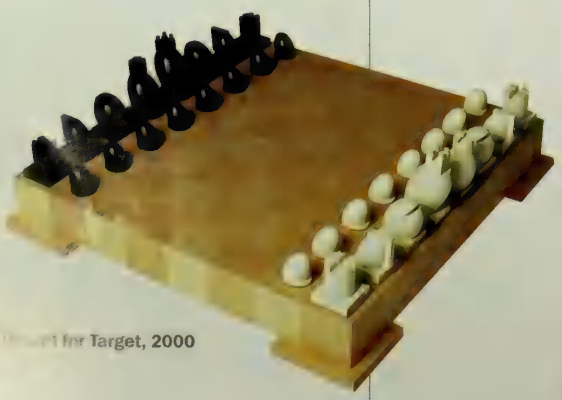
Kettle with bird for
Alessi, 1985



Wall clock for Target, 1998



Wall sconce for Target, 1999



[illegible]t for Target, 2000

So, an industrial designer thinks and designs differently than an architect? I think so. Now I'm speaking out of school, but my sense is that the architectural idea, from structuring the initial architecture, then understanding its character, and finally providing the objects within that room, are all [illegible] part of a way of thinking; if you are only dealing with [illegible] part, such as the rug or the light, you may miss the larger picture. Eames and Saarinen trained as architects, and were partners at one time, but one went one way and one went the other. Saarinen certainly continued to work on furniture for the rest of his life, but not to [illegible] degree that Eames did.

You once said you didn't feel qualified to design [illegible] car, but you are now designing a special-order Cadillac. How did that happen? I think my comment was colored by an invitation I had years ago from [illegible] Italian automobile manufacturer who asked if I were interested in designing [illegible] new model for them. The terms of the agreement [illegible] that I would move to Turin [Italy] for two years and would give up architecture for that period of time. I would [illegible] paid very well, but even though I was extraordinarily poor at the time and couldn't afford my rent, I thought that I just couldn't stop doing architecture, [illegible] matter what the pot of gold was at the other end of the rainbow. So I thought [designing [illegible] car] meant that [illegible] of commitment. What we [illegible] doing for this particular model of Cadillac is in [illegible] sense [illegible] shell-over; we are not designing [illegible] machinery. We don't design the works inside a toaster either.

Tell [illegible] three things that you haven't designed yet and why? Well, I probably could name dozens of things that I haven't designed yet, but generally the reason is that I haven't been asked. What I would like to design might be [illegible] bicycle [pause] or a piano. I really do miss having a long-term relationship with a good furniture company. It would have been very nice to have been asked, by this time certainly, to form a relationship [illegible] a furniture company that has the distribution, the wherewithal, the showrooms, the catalogues, the sales force, the pricing, [illegible] the techniques avail[illegible] to [illegible] today for lines of furniture. Not just one chair.

Where does that original spark of inspiration for your product sketches come from? If you [illegible] introduced to [illegible] [illegible] half an hour ago, I would have forgotten your name, but I will not forget what you look like; my mind is visual. It isn't like my friend Colin Rowe [the late influential theorist and RIBA gold medal winner], who had complete historical recall, but it is a kind of visual recall. My sketchbook is in my briefcase and I carry [illegible] all the time, as Le Corbusier did. If I [illegible] [illegible] pattern on a plate in Milan, it's not that I'm going to bring that pattern home, it's just that I'm going to remember it because the placement of this or that on the pattern created [illegible] wonderful tension that I had never seen or thought of before.

So tell us, what is your favorite product? Do you have children? If you had three kids and I asked you which one is your favorite, you couldn't answer. No, I don't have favorites. There [illegible] [illegible] couple of orphans that I've sort of taken under my wing. I absolutely loved them, but they didn't sell because their prices were too high or they [illegible] [illegible] something the public didn't like, like [illegible] little picture frame that [illegible] did for Target recently that hasn't sold very well. And every time I go to Target, I buy one just to make the sales look a little better because I love it [illegible]. It's [illegible] little orphan sitting there and it's going to sell out and nobody will ever [illegible] it again.

What was the most challenging product to design? Well, certainly the Cadillac is technologically and aesthetically challenging. You

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Kettle, sugar bowl, and creamer, Disney, 1993



Various character bookends, 1992





Charm bracelet for Belvedere Studio, 1991

Faucet for Dornbracht, 1999





Sink for Duravit, 1999

find that almost everything has been done, and you can't draw anything today without it having resonance in something you might have seen before.

Your signature product, the bird-spouted Alessi teakettle, has sold a million pieces over the past 15 years. Did that pose a design challenge? One of the problematic requirements of the original Alessi teakettle was that it had to boil water faster than any other teakettle.

Was that a very lucrative venture? We didn't sign a very good contract for that particular object. Alessi had never had anything that had sold that well, and their experience was that if a product ages for 5 years or 10 years, its sales will dip and its cost will increase. [They argued that] materials cost more, cost of living increases, and therefore royalty should descend. And we bought into that.

What type of material posed the biggest challenge to work with? One of the requirements for working for Steuben for the first time was to go to Corning, New York, and work with a gaffer. You must blow a piece of glass and huff and puff. When it was finished they put it on the table and as it was cooling they asked what I would call it, and I said, *I'd call it a door stop.* It was just a glass blob. It's like a coach: you're not making the tackle, and you're not making the pass, all you were doing is telling them to do it and it's a very different sensation. You realize the dependency on the people making it.

Ever design a product and then years later ask yourself, *What was I thinking?* The most frustrating thing is when you work with some manufacturers and the gaffer isn't there from Steuben, and the people in the manufacturing process aren't as good as you want them to be, and you have to cancel the project because it doesn't stand very well. We had an experience with a chair where they simply couldn't get it right, and we finally had to say, let's not let this go to market.

How are you normally compensated for a product? Is it a royalty? Normally it is an up-front design fee. If we do our work and they decide they don't want to bring something to market because they've had a change of heart, it's never refundable, it may be recoupable. In certain situations it makes sense to have it recoupable for them, because the length of design. If the design is a success and makes money for them, then we get a royalty.

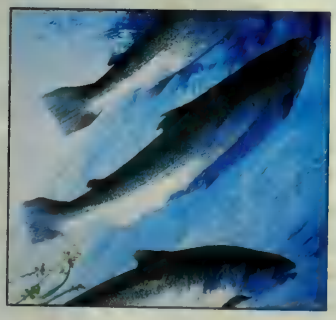
How costly is to bring a typical product to market? It would surprise you. For instance, a plastic chair is an enormous investment. You see it at the grocery store for $4.95, but the original was very, very expensive, and therefore they had to sell a gazillion of them. We never thought, for instance, that there were as many dirty toilets in America as there seem to be, because we sell over 3000 toilet bowl brushes a week! At Target it only costs $7.99, so you are not getting a lot of royalty from that, but 3,000 widgets a week is a lot.

So there are golden opportunities out there for architects to make money designing products? The commercial life of an object is very different than the fee life of a building. If the life life is a sine wave, where you get the job, your fee is paid, and the curve goes up through working drawings, it starts to descend through construction supervision. When the building is finished you go back down to ground zero again. Architectural firms need cyclical, or overlapping sine waves of building fees to manage their offices. If I design a tea kettle and it sells well—and that's the *if*— that trajectory is more or less either ascending for a long period of time, or it stays even. The toilet-bowl brush has been out about three

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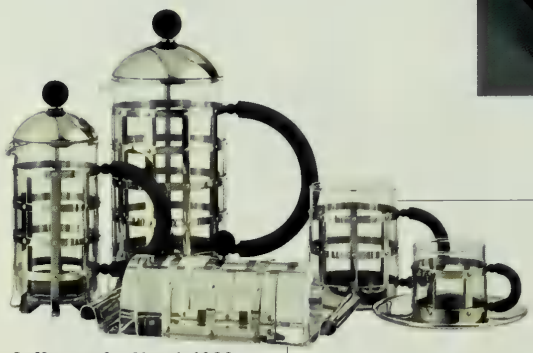
Silk necktie collection, Graves Design Studio Store, 1998



Porcelain dinnerware for Alessi, 1994

Necklace for Target, 1999





Coffee set for Alessi, 1989



Archaic vessels for Steuben Glass, 1989

months now and it's sold over 3000 every week for that time and presumably it will continue. I don't know for how long, but we can't buy them because they are out of them at Princeton.

What else sells well at Target? Generally our Target is out of all of the kitchen gadgets. The garlic press is really one of the best things we've ever done, though I can't eat garlic. These are new, [points to can opener, peeler, and other gadgets on the table] they have been out about two months, and the only one that I can ever buy is the pizza cutter. They're often out of the table clock and our watches. We sell about 1,300 teakettles a week at Target, and we made the single best-selling toaster in their history. But [Graves Design Studio products] also bring people into Target. I mean, it has had an effect on all of their sales. It has an effect on me! When I go to Target to pick up a watch to give to a friend or a client who's coming, I buy my golf balls and gummy bears there, you know? I'm teasing, but why wouldn't you?

In 1994 you opened a small store right next to your design office. Any plans to have a chain of Graves Design Studio stores? This little store is there for our convenience. When people come to town to talk to me or to see a relative and they know about this store, they come to it. Retail is not where we should take a risk. We should take a risk in design, and let Target and others sell our products big time, rather than a little design shop someplace, or even a dozen design shops. That takes on a life of itself, and we don't have time to manage that. It would be wonderful to have stores with our furniture, carpeting, lighting, and our tabletop all together, but I don't have that.

Which products do you use most in your home? I use my Alessi teakettle. I use things on the counter—the toaster every morning, the can opener for my dog's food, the mixer occasionally. I've got an Alessi paper towel holder on one side of my sink and a Target one on the other—kind of dueling paper towel holders. I have picture frames around the house. And for a while, outside of the kitchen, I didn't allow anything I designed in the house because I have a collection of Biedermeier furniture. But I've changed that rule. We designed some chairs for a hotel, and I did a slightly larger version for myself, so I have two chairs in the living room that I really like. Then I put the sconces in the house that we designed for Baldinger, and so there's a relaxation of that rule.

What has been the biggest lesson in your role as a product designer? People thought it was strange for us to design for Target, after designing for Steuben, Alessi, and others. And I find it the most bizarre thing that I could ever imagine. When that question came up we were just opening the Denver Public Library and I thought that in architecture it would be like standing at the door and checking someone's W2 Form before they would be allowed in. I mean it's so silly to think that there is a difference in design between Target and Tiffany. There is certainly a difference in material, but the effort, the engagement in making that as a designer is exactly the same for me.



Graves pours himself some tea from a teapot in production by Leonardo into a mug by Alessi.



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New Products

When specifying for a bathroom, first consider who will use it. According to Gary West, president-elect, National Kitchen and Bath Association, this affects lighting, vanity height, and safety issues. Experts note a shift toward modernism, reflected by above-the-counter vessels and a strong presence of glass and stainless steel. *Rita F. Catinella*





JAPANESE SOAKING TUBS CAN CLEAN BODY AND SOUL

The Japanese history of using luxury wooden soaking bathtubs extends back more than a thousand years. Hinoki Soken Co. Ltd., one of the biggest manufacturers of Japanese-styled soaking baths, crafts them for high-end homes and traditional Japanese resort hotels. The tubs are made of Kiso Cypress (also used to make Japanese imperial shrines), an expensive, replenished wood that has been strictly controlled by the government for more than 300 years. The cypress offers durability, watertightness, sterilizing power, easy maintenance, and keeps the water hot for up to 12 hours. Cypress also naturally produces an aromatic refined-oil essence, which is said to stimulate blood circulation, promote relaxation, stabilize blood pressure, reduce stress, and promote good sleep. Designs can easily fit into western-style housing, which most modern Japanese people live in today. The bath can be combined with modern technologies, such as jet-bath and lighting, or with decorative interior materials, such as stone. Cypress wall and floor systems are also available. Hinoki Soken is currently looking for an American business partner to develop regional dealers in the U.S. 011/81/72/856-1435. Kyoto Science, Osaka, Japan. **CIRCLE 200**





NEW BATHROOM FURNITURE AND ACCESSORY OFFERINGS EXPAND UPON TILE LINE

Ann Sacks has recently expanded its product line; two new showrooms will sell not only tile and stone, but kitchen and bath accessories and plumbing as well. Lineaerredue bathroom furniture (top), for example, combines chrome-polished brass with either golden-hued wenge wood or warm teakwood for a contemporary look. Atlanta, shown here, is a part of a series consisting of four distinct designs that feature a minimal approach to modern Italian styling.

Additional products in the Linearredue series include the deep toned Afro, subtly scaled for smaller spaces. Other offerings include coordinating bath accessories, and concrete or Carrara marble sinks. The Barbara Barry collection features several pieces "for him" including a semainier (razor case) with an optional square mirror, and a basin with hidden drawers and a lower shelf.

Of course, several new tiles are available from Ann Sacks as well, including the iridescent color palette of Vidrio ArtGlass (bottom left), which is available in 48 colorways and comes netted in 2-inch squares. The spectrum of colors that make up Erin's Glass mosaic glass tiles can be used to evoke a 3-D faux rug on the bathroom floor. 503/281-7751. Ann Sacks Tile and Stone, Portland, Ore. **CIRCLE 201**

HAND-CRAFTED METAL AND GLASS BASINS

Alchemy Glass & Light, established in 1992 by artists Michael Murphy and Steve Weinstock, creates high-end sink basins, countertops, vanities, lighting fixtures, and bowls. Alchemy specializes in Cienega Glass, which is created by fusing ground metals between layers of glass. The organic patterns and colors sealed in the glass are determined in part by the way the metals are applied, but are also affected by the chemical changes that occur during the fusing.

Complementing the glass sink line are custom-made cast-bronze pedestals, vanity bases, and French limestone countertops. Alchemy's lighting line includes copper-mesh and burnished fossil sconces, Cienega glass hanging fixtures, and sanded steel-finished, glass-shade tribe torchieres. Drain assemblies are specifically made to fit the sinks and are available in a variety of finishes, including polished chrome, polished nickel, oil-rubbed bronze, and antique copper. Shown here is the wall-mounted velvet Cienega sink. 310/836-8631. Alchemy Glass & Light, Los Angeles. **CIRCLE 202**



New Products

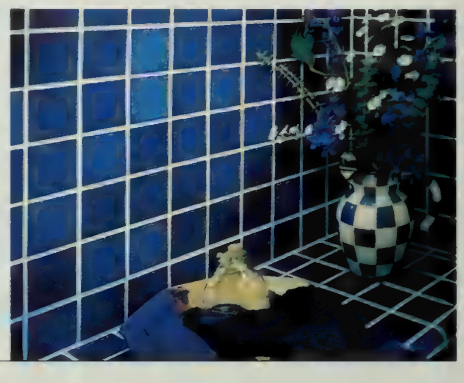


► X marks the spot

The sculptural X Basin, designed by Bruce Tomb, is a sand-cast vessel basin available in white bronze, silicon bronze, brass, or aluminum. The basin has a signature X-shaped drain detail milled directly into the cast material. It can be mounted with a wall bracket or directly onto a countertop. The basin is shown here with a faucet from Chicago Faucet Company and an institutional foot pedal. 415/970-9210. Infinite Fitting, San Francisco. **CIRCLE 203**

► Antibacterial and stylish

Portobello America's Trinity line of tiles have many applications, including kitchen and bath countertops, backsplashes, tub and shower surrounds, and pools or spa surfaces. The Trinity line, complete with coordinating trim and border tiles, is intended primarily for residential use, and features slight color and depth variations. The tiles come in various finishes including a slip-resistant floor finish for bathrooms and heavy traffic areas and a gloss finish for walls and counters, each of which is glazed with an antibacterial surface. 714/535-3311. Portobello America, Anaheim, Calif. **CIRCLE 204**





◄ Built-in bidet

TOTO USA's newest bathroom concept is the Chloe Washlet, a seat that offers a convenient built-in bidet system. A gentle aerated dual-action water spray can be controlled by each user for a hygienic cleansing. A side panel control features an easy touch pad to direct the volume of the water flow, its temperature level, as well as a seat warming function. Chloe's spray unit is self-cleaning with antibacterial properties, and it easily installs into a regular 120V AC outlet. 800/350-8686, x1700. TOTO USA, Morrow, Ga. **CIRCLE 205**



▲ Bathing for the younger set

Hansgrohe's colorful Alfie the Aquasaur handshower features both a full shower and soft aerated spray. Alfie's self-cleaning "whiskers" (tiny cleaning pins) shift in and out of the spray channels expelling dirt and build-up. Alfie can be easily retrofitted to be used with an existing showerhead. 770/844-7414. Hansgrohe, Inc., Cumming, Ga. **CIRCLE 207**



▲ Livin' la dolce vita

Kohler's new Dolce Vita cast-iron lavatory can be installed above the counter, self-rimming, or wall-mounted using Kohler's wrought-iron bracket. The properties of cast iron create a contrast between the smooth, glazed interior, and the textured exterior. The sink is shown here in the company's new Roussillon red color. 800/4-KOHLER. Kohler Co., Kohler, Wis. **CIRCLE 206**



◄ A splash of zen

The Zen above-counter basin by Absolute features soft lines and a wave-shaped basin. Zen measures 20 inches wide by 14 inches long by 3 inches deep. Zen is available in more than 100 colors and can be mounted left to right, right to left, or front to back. Zen is designed for countertop installations, but can be used in all types of tabletop, countertop, or even vintage furniture installations. 800/359-3261. Absolute, A Division of American Standard Inc., Chandler, Ariz. **CIRCLE 208**



◄ Putting corners to work

The new corner cabinets in Robern's Designlogic series of modular cabinets are available with a choice of doors, aluminum frames, four colors, and three door glasses. Two cabinets may be stacked vertically on top of the other for up to 80 inches of storage space. The F Series, shown, offers mirror, clear, or frosted glass and an optional interior lighting system. 215/826-9800. Robern, Inc., Bristol, Pa. **CIRCLE 209**



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▼ Happy Days are here again

The geometric shape of the Happy D. bathroom takes on the shape of the letter D from the top view. The lavatories are available in a 29 ½-inch or 25 ½-inch size, with either a full pedestal or siphon cover. The smaller sink also comes in a console configuration. Wall hung versions of the toilet and bidet are available. Without an apron, the tub can be fitted with one of four Hoesch whirl systems. 888/387-2848. Duravit USA Inc., Atlanta. **CIRCLE 210**







◄ 3-D Italian tiles

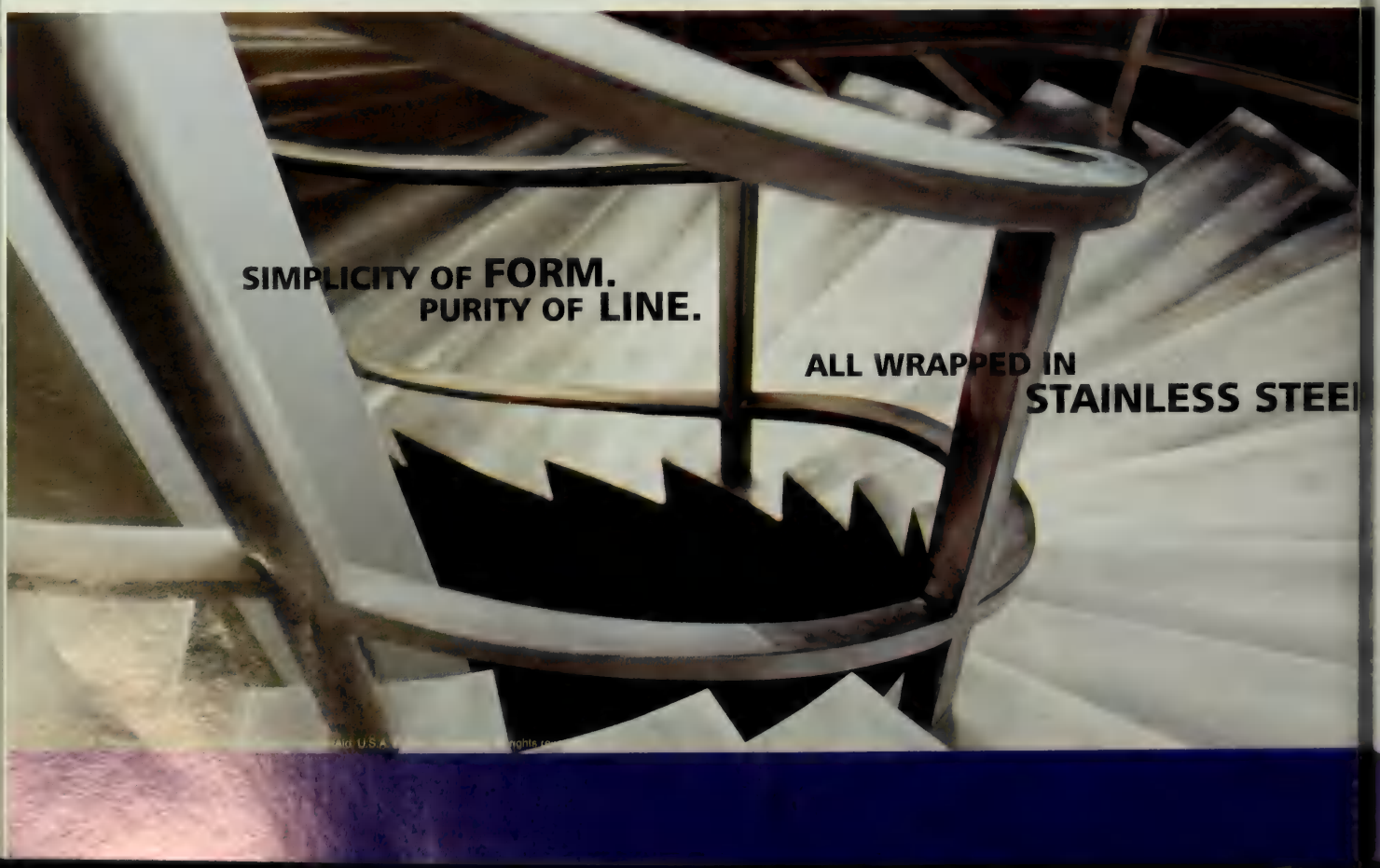
Frost, from Ascot Ceramiche, is a line of double-fired tiles complemented by a series of decorative and accessory tiles. Backgrounds are enhanced by texturing in the form of essential lines: circles and rectangles can be combined to produce different geometric shapes. Recessed dots and dashes, and raised squares, dashes, and lines add dimension and volume to the surface. 212/980-1500. Italian Trade Commission, Ceramic Tile Department, New York City. **CIRCLE 211**

► An eye for detail

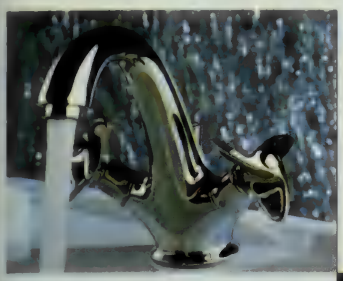
The O-hi-O line of accessories is manufactured of aluminum, brass, and stainless steel. New Paris's gold-plated ball and aluminum cone forms the basic bracket for all items (soap dish, shown). Xenia features an aluminum triangulated bracket with a choice of colored-aluminum locking knobs. 215/826-9800. Robern Inc., Bristol, Pa. **CIRCLE 212**



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New Products



▲ Seafaring faucet
Offered in polished chrome, the handles of AquaDreams' Nautica faucet resemble a ship's propeller. The Italian fixture complements the company's line of washbasins, shower doors, fountains, tabletops, lamps, and other handmade glass-fusion products. 877/818-9000. AquaDreams Ltd., Los Angeles.
CIRCLE 213

▼ Room with a view
Alumax offers a complete line of heavy glass hinges and hardware in 90 degree, 180 degree, and 135 degree glass-to-glass and wall-to-glass hinges in several standard and custom finishes. Shown here is the Alumax model DL-92 heavy glass shower enclosure in a chrome finish. 870/234-4260. Alumax Bath Enclosures, Alcoa Extruded Construction Products, Magnolia, Ariz.
CIRCLE 214





▲ Hand-glazed tiles create a dramatic toilette
The tiles accenting the bathroom above are from three different series from Mutina. Gli Scorzati, I Pastelli, and Crystal are all available in three formats, 4-by-4-inch, 3-by-3-inch, and Goccia (an ice-cream cone shape) in 3-by-3-inch. Goccia is also available in a fan shape. The rich colors range from cobalt blue, green, yellow, and ruby red, to light lavender. The tiles are hand-glazed and can have a shiny, speckled, or matte finish. They are available through several showrooms, including the soon-to-open Boffi showroom in New York City. 212/980-1500. Italian Trade Commission, Ceramic Tile Department, New York City. CIRCLE 215

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New Products

▼ Model home

The Vitricor House, located in upstate New York, serves as a showcase for the various applications of Vitricor decorative acrylics. Bathroom showers are flanked by floor-to-ceiling shower surrounds in mildew- and stain-free Vitricor that feature photographic or abstract designs. 800/526-9469. International Paper, Decorative Products Division, Odenton, Md. **CIRCLE 216**





▲ Proper British plumbing

The Piccadilly faucet, from THG, features marble levers and traditional English plumbing. Like all of THG's products, Piccadilly is available in a a variety of different finishes. Matching accessories include robe hooks, towel bars, towel rings, tumblers, toilet brush holders, and soap dishes. 954/425-8225, THG, Coconut Grove, Fla. **CIRCLE 218**

▼ Not a draining experience

Pittsburgh Corning glass-block shower systems are delivered as a component system with glass-block, door, accessories, and specially-designed acrylic shower base all included. Each custom base design features molded channels that serve as guides for block placement. Option styles include the Classic, Neo Angle, and Walk-in. 724/327-6100. Pittsburgh Corning, Pittsburgh. **CIRCLE 219**



► Cleaning up the bathroom

MilleDue is a collection of vanities designed by Lino Cordato for Doma. In sync with Italian and European trends, MilleDue's freestanding units offer openness and flexibility. Also available are modular units that feature a variety of colors or wood finishes, incorporating marble or wood-veneered countertops, opaque glass cabinets, or beveled-arched mirrors. 310/657-3224. Doma Inc., Los Angeles. **CIRCLE 217**



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New Products

▼ Stainless-steel soak

Diamond Spas has been fabricating custom stainless-steel bathroom fixtures for 15 years. The company's product line consists of hand-cut, hand-rolled, and welded 16-gauge stainless-steel soaking baths and whirlpools, pedestal and counter top lavatories, and shower pans. The full-body countered soaking bath is shown here mounted in sandstone. The bath features weld seams and a hand-buffed finish. 303/665-8303. Diamond Spas Inc., Broomfield, Colo. **CIRCLE 220**





▲ Chameleon-like finish

Nickel finishes in the bath are increasing in popularity on account of their tendency to take on the tones and colors of the room's decor. Delta has expanded its offering of the Brilliance pearl-nickel finish to its traditional handles and accessories, Neo Style bath faucets, Roman tub hand-held showers, and Monitor II two-handle pressure-balance tub/shower valves. The finish is highly resistant to abrasions from daily use and cleaning, and is guaranteed never to corrode, tarnish, or discolor. Like Brilliance polished brass, pearl nickel's resistance to corrosion from salt air and sea mist makes it ideal for coastal homes. 800/345-DELTA. Delta Faucet Co., Indianapolis. **CIRCLE 221**

► Not your average schvitz

The Indulgence collection of custom whirlpools features nine new designs and a variety of custom options. Options include lumbar massage jets, a massage pillow, and an air-induction sequencer that blows pre-warmed air up and down the spine through 16 positioned jets (shown). 800/632-0911. Aqua Glass Corp., Adamsville, Tenn. **CIRCLE 222**



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Products Briefs



► High-styled oak and pine

Morgan Door Company, part of the Jeld-Wen family, introduces the High Style collection of entry doors. High Style offers specially crafted doors in select oak and pine, in styles ranging from contemporary to colonial. The line offers a choice of decorative glass inserts, brass or lead caming, finishing options, coordinating sidelights and transoms, and sizes up to 2-feet-wide and 8-feet-tall. 800/877-9482. Jeld-Wen, Klamath Falls, Ore. **CIRCLE 223**

▼ Handcrafted mahogany

Simpson Door introduces a new collection of mahogany exterior doors. Handcrafted with Honduran mahogany, the collection features all new glass patterns in 24 different door designs. All of the doors feature raised moulding and bladder-pressed panels, and are handcrafted in the U.S. Matching sidelight and transoms can also be ordered. 800/952-4057. Simpson Door Co., McCleary, Wash. **CIRCLE 224**





▲ Efficient true-divided light

Architect Series wood windows and doors offer a wood interior and aluminum-clad exterior with a patented EnduraClad baked-on finish. An exclusive technology creates a true-divided light appearance yet provides the energy efficiency of insulated glass. 515/628-1000. Pella Corp., Pella, Iowa. **CIRCLE 226**

► Turn inside out

This conservatory for a 10,000 square-foot chateau-style residence in Connecticut's northwest hills serves as both a greenhouse and an entertainment area. Architectural Openings used a combination of windows and doors to meet the clients sight-line requirements. The package included French doors, tilt-turn windows, electrically-operated hopper windows, and a wall-sized accordion door that opens a full side of the conservatory and turns the room into a converted patio. Architectural Openings standard products are also ideal for oceanfront homes. They exceed grade 60 for air and water infiltration. 617/776-9223. Architectural Openings Inc., Somerville, Mass. **CIRCLE 225**



▼ First impressions

There are at least 600 possible door choices available from Pinecrest. Designs include Craftsman, Prairie School, Post Modern, Country French, Hand Carved, Victorian, and Hand Wrought Iron. Commissions include the private homes of Presidents of the United States, royalty, and internationally known personalities of screen, TV and sports. Pinecrest also offers mantels, shutters, cornices, and metal ceiling and wall panels. Custom designs are available. 800/443-5357. Pinecrest, Minneapolis. **CIRCLE 227**



▲ More sensitive to needs

Until now, the capability of the sensors on a garage door were limited to detecting down force on the bottom edge of the door, or by having the invisible beam broken between the photo-eye sensors. The highly sensitive, UL-listed DoorMaster residential garage-door opener is able to detect any resistance to any part of the door, whether it's being opened or closed, which increases safety for children and pets, and reduces damage to vehicles. 800/827-DOOR. Wayne Dalton Corp., Mt. Hope, Ohio. **CIRCLE 228**



Products Briefs

▼ Floral fabrics



Bloom is a new collection of upholstery, drapery, and casement fabrics designed by Lori Weitzner for Sahco Hesslein/Bergamo. Inspired by the natural world, these velvets, silks, wools, linens, chenilles, and sheers will be available in 11 patterns and a range of colors. The fabrics are intended for residential, high-end retail, hospitality, and executive spaces. Weitzner is the first American to design a comprehensive collection for the company, which is headquartered in Germany. 212/888-3333. Bergamo Fabrics Inc., New York City.

CIRCLE 229



▲ New corporate direction

As part of the renovation of GMAC Mortgage in Waterloo, Iowa, Interspace Inc. incorporated the company's corporate identity as part of a directional system. The Philadelphia firm suggested using large photo murals as part of a comprehensive 200,000-square foot renovation. GMAC supplied the artwork on CD-ROM to Marlite, which transformed the graphics into a grid formation and surfaced each component through large digital format printing. In addition to the Marlite photo murals, Interspace also utilized Marlite Cherry paneling in the main reception area. 330/343-6621. Marlite, Dover, Ohio.

CIRCLE 230

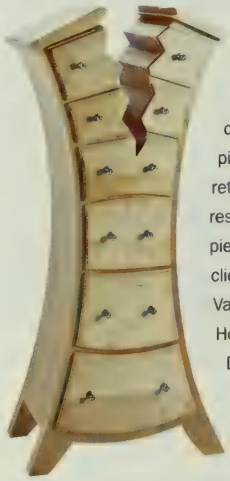
▼ Tough as nails

Used in commercial applications for more than 25 years, Iron Woods, from Timber Holdings Ltd. (THL) are naturally resistant to termites, rot, splintering, fire, and chemicals. THL works closely with designers to help them reach their environmental objectives. 414/445-8989. Timber Holdings Ltd., Milwaukee.

CIRCLE 231







◄ Fun-iture

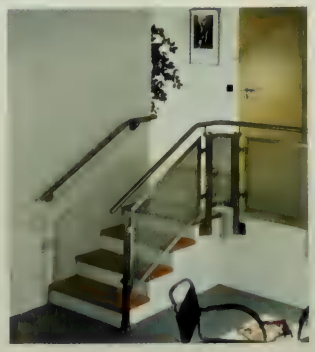
Whimsy is a way of life for Canadian Judson Beaumont, founder of Straight Line Designs. His Vancouver, British Columbia-based workshop provides design and manufacturing services of custom furniture pieces for trade show booths, movie and television props, retail environments, hospitals, corporations, and private residences. Beaumont also sells a number of designer pieces (shown) which can be shipped quickly. His diverse clientele includes Wilsonart International, Science World, Vancouver, Vancouver International Airport, and Overlook Hospital, Summit, N.J. 604/251-9669. Straight Line Designs Inc., Vancouver, British Columbia.

CIRCLE 232

► Interior or exterior railing

Inox is a new pre-engineered stainless steel railing system from HEWI. Guardrails and handrails feature a brushed finish corrosion resistant stainless steel for interior and exterior [illegible]. Guardrail infills are attached [illegible] stainless steel posts. The [illegible] three to seven horizo[illegible]s straight tube [illegible]wood. 717/293-[illegible]

CIRCLE 233

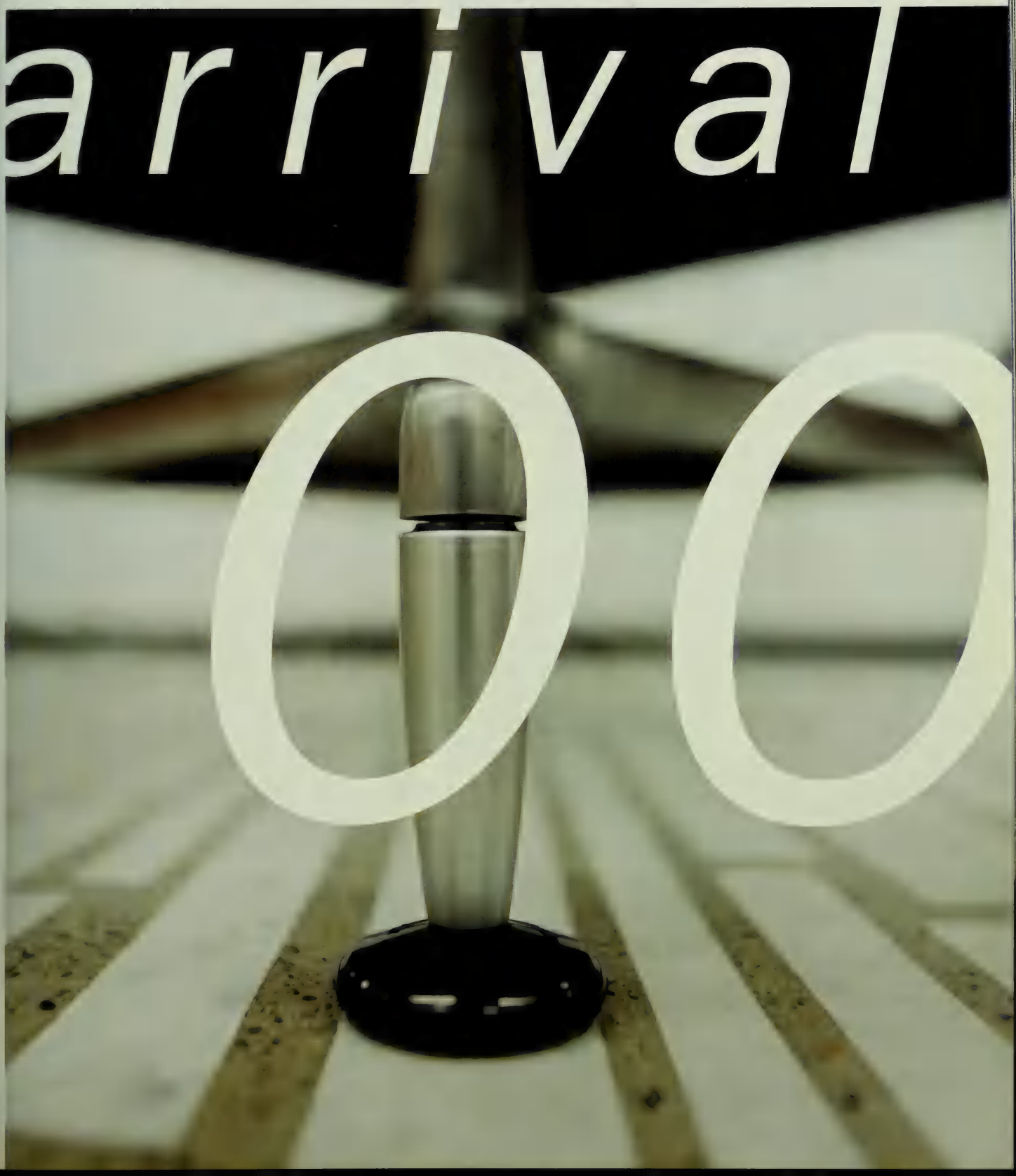


► Puzzling floor covering



The firm of Transylvania-born architect and interior designer Adam Tihany not only designs numerous restaurants and hotels, but furniture, lighting, door hardware, and even restaurant linens (soon to be available from Frette). Rugs.link, his first collection of rugs for the residential market, is now available through M&M Design International. The collection features eight designs in a range of colors selected by the designer, available in stock (6-by-9-feet and up) and custom sizes. Multiple rugs can be puzzled together to form larger ones. All rugs are hand-knotted in 100 percent wool. 212/726-0015. M&M Design, New York City.

CIRCLE 234


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Product Briefs

▼ The one-stop block

Insulating concrete forms, which are modular blocks made of expanded polystyrene, are being used to build reinforced concrete walls for commercial and residential construction. Once put in place, the ECO-Block system creates the form into which the concrete is poured. After the concrete has cured, ECO-Block stays in place and becomes the insulation (interior and exterior) for the walls of home. 954/766-2900. ECO-Block LLC, Ft. Lauderdale, Fla. **CIRCLE 235**





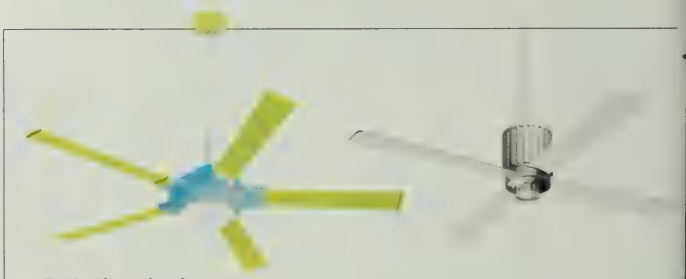
▲ Smart windows

The SmartFit double hung clad wood window features tilt-in, removable top and bottom sash. SmartFit offers many of the features of Caradco's premier line, but is less expensive and requires only a five-day lead time. Constructed with roll-form, overlapped aluminum cladding and weather stripping at the head and sill, SmartFit provides extra protection from air and water infiltration. Three exterior cladding colors and grilles between the glass are available. 800/238-1866. Caradco, Rantoul, Ill. **CIRCLE 236**

► Walk the recycled plank

Louisiana-Pacific is entering the composite decking market and plans to construct two wood-fiber composite decking facilities. Composite decking is made of recycled and/or excess wood products and post-consumer recycled plastic. Products will include solid and hollow planks and railing systems. 800/566-2282. Louisiana-Pacific, Portland. **CIRCLE 237**

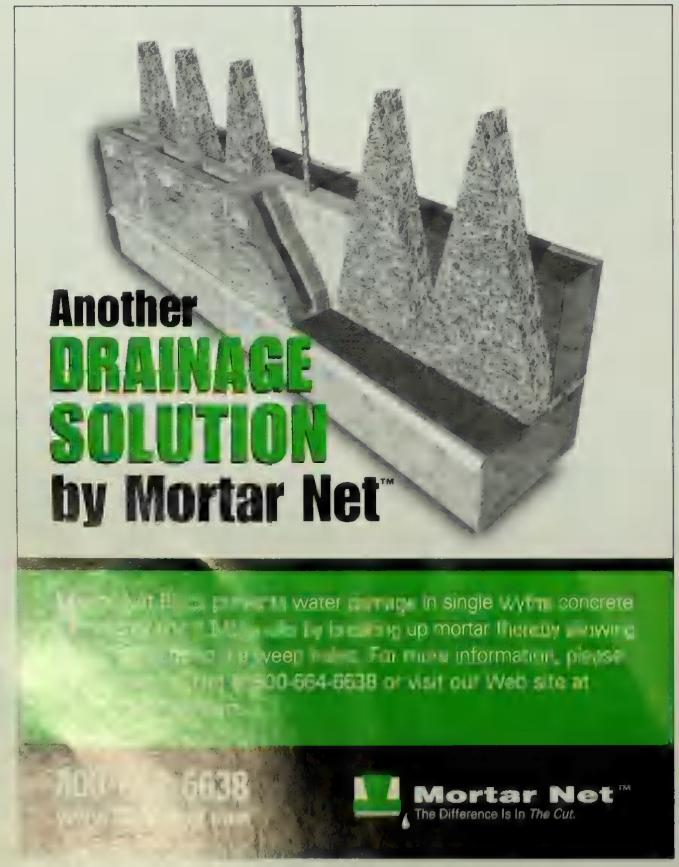




▲ Rotating designs

UFO and Flute are two new additions to Ron Rezek's collection of modern ceiling fans. UFO, available in a matte titanium or a three-color "Miami" finish (shown), has a space-craft inspired body that rotates with the blades. Flute alludes to the drum of a classical column and is available in a textured nickel or gloss white finish. 541/482-8545. Modern Fan Co., Ashland, Ore. **CIRCLE 238**

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Product Briefs

▼ Exploring space

ClosetMaid's new MasterSuite closet accessories include a full line of compatible laminate and wire products. Laminate accessories are constructed of thermal-fused, ¾-inch white melamine-laminated particleboard with PVC edge banding creating scratch-resistant, nonpeeling surfaces. The line includes a center island kit with four slide-out drawers, tower doors that provide enclosed cabinet space for fine clothing, and corner shelves. Also available are 6-inch, 13-inch, and 17-inch-deep storage baskets, a jewelry tray, and stackable shoe racks. 800/874-0008. ClosetMaid, Ocala, Fla. **CIRCLE 239**





◄ Gold-plated protection

Sto Gold Guard includes Sto Gold Coat, a roller-applied waterproofing coating that protects any sheathing material during and after construction, and Sto Gold Fill, a trowel-applied flexible joint compound used to fill sheathing joints and rough openings. Gold Coat works with a variety of sheathings, including gypsum, plywood, and OSB. Barrier EIFS can be applied directly over both lines. 800/221-2397. Sto Corp., Atlanta. **CIRCLE 240**



► Warm up with fir

Weather Shield has introduced American fir to its Custom Wood Interiors collection. The new American fir offering rounds out a family of softwoods that include knotty pine and traditional pine. American fir is ideal for classic and country settings, kitchens, and family rooms. The company's other four premium hardwoods in the collection—oak, cherry, maple, and mahogany—can be used to complement hardwood floors and accessories. 800/477-6808. Weather Shield Mfg. Inc, Medford, Wis. **CIRCLE 241**

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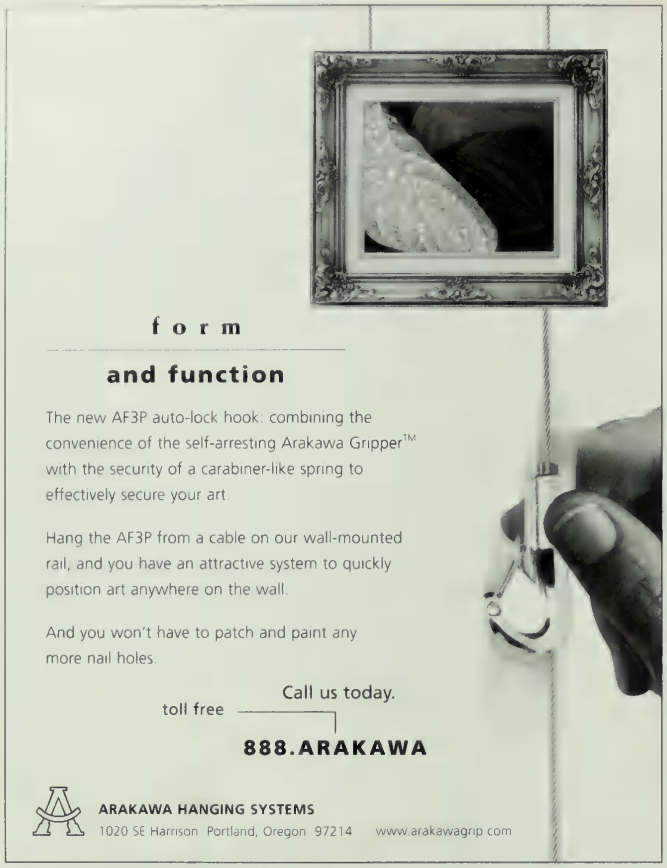
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Product Literature

New detailing manual

The Concrete Reinforcing Steel Institute (CRSI) recently published the 2000 edition of *Reinforcing Bar Detailing*, a textbook for reinforcing steel detailers. 800/465-CRSI. CRSI, Schaumburg, Ill. **CIRCLE 242**

Ceiling systems catalogue

Chicago Metallic's 2000 catalogue focuses on standard and designer ceiling systems, perimeter curved/straight trim, fiberglass panels, vinyl-gyp panels, fiberglass reinforced panels, and the newly introduced drywall grid system. 800/323-7164. Chicago Metallic Corporation, Chicago. **CIRCLE 243**

Remodeling brochure

Laticrete's new brochure showcases a wide range of solutions for residential flooring installations. 800/359-3297. Laticrete International, Bethany, Conn. **CIRCLE 244**

Ceiling specification

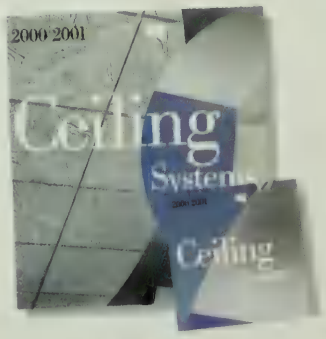
USG's 2000/2001 ceiling systems catalogue is an easy-to-use reference for specifying the company's ceiling panel, suspension system, and speciality ceiling products. A CD-ROM also provides specification information. 800/950-3839. USG, Chicago. **CIRCLE 245**

Hardwood catalogue

Bostik's new hardwood products catalogue includes photos and detailed descriptions of the company's complete line of hardwood installation and care products. 800/7-BOSTIK. Bostik, Middleton, Mass. **CIRCLE 246**

Metal roofing ideas

Met-Tile has a new flyer showcasing rural and agricultural uses for its metal tile panel roofing system. 800/899-0311. Met-Tile, Inc., Ontario, Canada. **CIRCLE 247**









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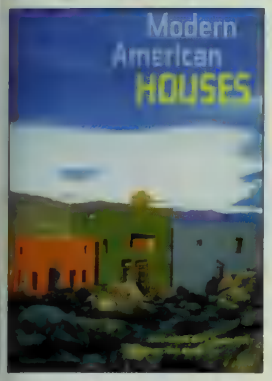
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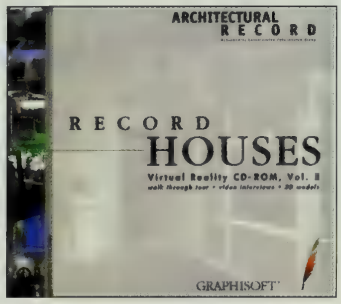
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Product Literature

Cabling system catalogue

The Siemon Company's 2000 catalogue features Siemon's latest cabling system and connecting hardware technology. 860/274-2523. Siemon, Watertown, Conn. **CIRCLE 248**

Particleboard guide

The Composite Panel Association's (CPA) 2000 buyers and specifiers guide includes listings of all CPA member companies and their particleboard and MDF mills. The guide also includes a raw material section, which describes composite panel fiber and resins. 301/670-0604. CPA, Gaithersburg, Md. **CIRCLE 249**

Fire code changes

The 2000 International Fire Code is a result of input from fire service organizations across the country. More than 900 proposed code changes were initially submitted for the code, resulting in more than 600 changes. 800/214-4321, x371. BOCA International, Country Club Hills, Ill. **CIRCLE 250**

Cement association catalogue

Information on hundreds of publications, videos, software programs, educational seminars, and more is included in the newest edition of the Portland Cement Association catalogue, *Concrete Solutions 2000*. 800/868-6733. Portland Cement Association, Skokie, Ill. **CIRCLE 251**

Cedar for commercial use

In a new full-color brochure, International Homes of Cedar highlights the advantages of systems-built cedar structures for commercial applications. The brochure features photography of commercial buildings, product descriptions, wall system options, and general specifications. 800/767-7674. International Homes of Cedar, Woodinville, Wash. **CIRCLE 252**

Door specification CD-ROM

Dawson Doors' new CD-ROM includes product specifications and CAD drawings. Macintosh and Windows compatible, the CD also features finish samples and photographs for each series of door. 716/664-3811. Dawson Doors, Jamestown, N.Y. **CIRCLE 253**

Accounting guide

The *2000 Construction Accounting Deskbook* covers construction accounting, taxation, financial administration, management, and legal issues in one volume. 619/699-6807. Harcourt Professional Publishing, Denver. **CIRCLE 254**









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Dates & Events

Calendar

Triumphs of the Baroque
Montreal
Through April 9
An exhibition of European architecture from 1600-1750, with 30 large-scale models. The Montreal Museum of Fine Arts. 514/285-1600.

Samuel Mockbee
Philadelphia
April 10
The architect presents his lecture "Rural Studio World Tour." University of Pennsylvania Graduate School of Fine Arts. 215/898-3425.

Todd Williams Work/Life
New York City
April 13
Williams lectures on current work. 6:00 pm. The City College of the City University of New York. 212/650-7118.

Against Design
Philadelphia
Through April 16
Designers and artists including Roy McMakin, Andrea Zittel, and Angela Bulloch blur the boundaries between architecture, design, and art. Institute of Contemporary Art, University of Pennsylvania. 215/898-7108.

Scale: The Young Architects' Forum 1999
Washington, D.C.
Through April 16
On display are the Architectural League of New York's winners of its 18th annual competition for young architects. National Building Museum. 202/272-2448.

Terrorism and Beyond
Oklahoma City
April 17-19
To mark the dedication of the city's federal building memorial, this conference addresses terrorist threats, motivations, concerns, policies, and predictions for the next century. Myriad Convention Center, Oklahoma City. 405/232-5121 or register online at www.okcterrorisminstitute.com.

Land, Sea, and Air: Digital Maps Survey
New York City
April 20 - May 12
Curated by Michael Silver and Marc Tsurumaki, the exhibition accompanies a series of programs on the aesthetic, cultural, and political effects of new forms of mapping. Parsons School of Design. 212/229-8955.

The Un-private House
Vienna
Through April 24
This exhibition of 26 ground-breaking private houses by architects was organized originally by Terence Riley for the Museum of Modern Art in New York City. MAK-Austrian Museum of Fine Arts. 011/43/(1)712-8000.

Millennium Models
Los Angeles
Through April 28
A multidisciplinary show of young talent in the fields of architecture, interiors, landscape, product design, and graphics. Pacific Design Center. 310/657-0800.

Piet Mondrian: The Transatlantic Paintings
Cambridge, Mass.
April 28 - July 22, 2001
Some 15 late paintings by the master abstractionist will accompany this display of the results of two years' technical research into the artist's methods. Harvard University Busch-Reisinger Museum. 617/495-9400.

En chantier: The Collections of the CCA, 1989-1999
Montreal
Through April 30
Celebrating its 10th anniversary, the CCA displays the best of its collection of architectural drawings, renderings, models, and photographs. Canadian Centre for Architecture. 514/939-7000.

Landscape Architecture at Harvard
Cambridge, Mass.
Through April 30
Photographs and installations explore both the heritage and future of landscape—from art to ecology, technology, and sociology. Harvard University Graduate School of Design. 617/495-8275.



CIRCLE 89 ON INQUIRY CARD

Dates & Events

Public Architecture Exhibitions
Philadelphia
May 4-6
Throughout the city, 12 individual exhibitions coincide with the AIA National convention, themed "New Century, New Vision: Livable Communities for America's Future." AIA Philadelphia. 215/569-3186.

See the U.S.A.: Automobile Travel and the American Landscape
Washington, D.C.
Through May 7
This exhibition celebrates roadside architecture and the culture of the automobile, featuring photos by John Margolies, author of 10 books on the subject. National Building Museum. 202/272-2448.

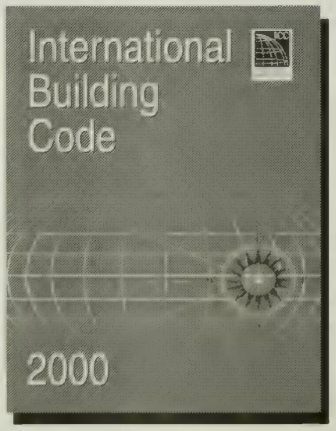
Ten Shades of Green
New York City
Through May 13
Critic Peter Buchanan has curated this major traveling exhibition of sustainable design work by Norman Foster, Thomas Herzog, Michael Hopkins, and Françoise Jourda. The Architectural League of New York. 212/753-9173.

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Ralph Rapson: Sixty Years of Modernism
Washington, D.C.
Through May 28
The first comprehensive exhibit of the work of this Midwestern modernist, whose achievements encompass architecture, furniture design, and urban planning. The Octagon. 202/638-3221.

Retail Lighting Conference
Fort Worth
June 7-9
This gathering, titled "Illuminate 2000," promises the latest techniques and hands-on learning for lighting designers, specifiers, and project managers. Texas Christian University. 800/828-7134.

Summer Program in Classical Architecture 2000
New York City
June 9–July 23
An intensive training program in the building arts for students in the architectural design disciplines, practicing architects, interior designers, preservationists, educators, builders, and craftspersons. The Institute of Classical Architecture. 917/237-1208.

Structure and Surface: Contemporary Japanese Textiles
San Francisco
Through June 20
Japanese masters combine traditional techniques with modern industrial methods, in woven metals and other materials suitable for interior design and clothing. San Francisco Museum of Modern Art. 415/357-4000.

Gwathmey Siegel & Associates Exhibit
New York
Through August 14
A display of 14 institutional projects is augmented by a 50-foot wall that surveys the entire practice of the firm. The Graduate Center, The City University of New York. 212/817-7394.

Frank Lloyd Wright: Windows of the Darwin D. Martin House
Washington, D.C.
Through August 20
An exhibition of some 70 art-glass windows, doors, and skylights (both originals and reproductions) that Wright created for the house in Buffalo. National Building Museum. 202/272-2448.

Competitions

Place, Time, and Symbol
Entry deadline: April 17
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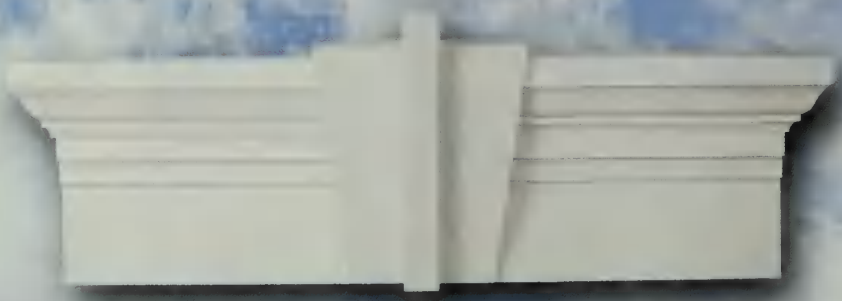


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Dates & Events

first prize, designers will propose an urban redesign for a three-block area facing Parliament in the Canadian city of Ottowa. Call 613/789-1115 or visit www.raic.org/competition.

Best Practices in Affordable Housing
Entry deadline: April 30
The City Design Center at the University of Illinois seeks projects for an Internet catalogue of outstanding affordable housing in the U.S. Call 312/996-2076 or E-mail cdesignc@uic.edu.

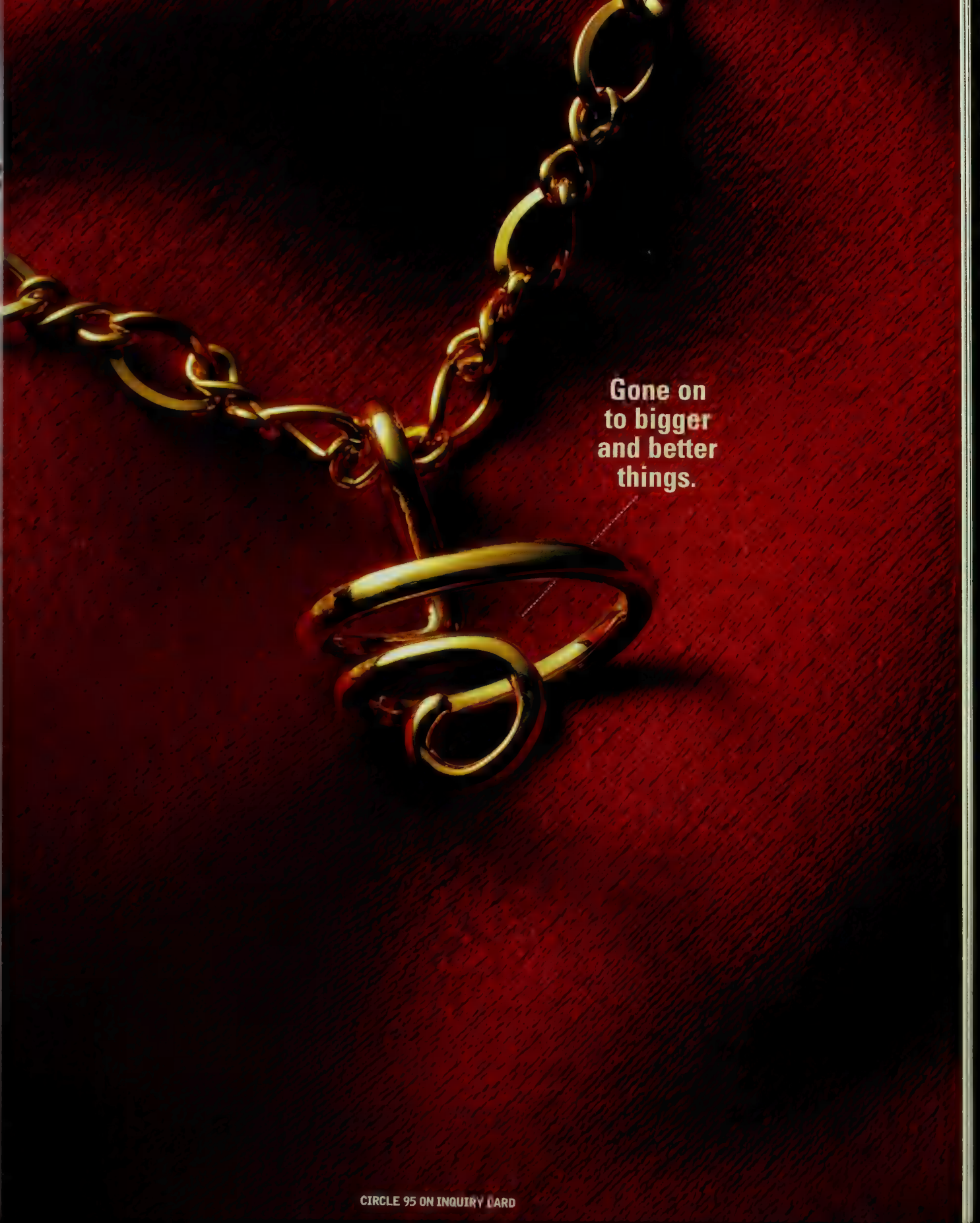
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This $10,000 scholarship open to 1999 architecture graduates offers a six-month internship with the Renzo Piano Building Workshop, in Genoa, Italy. Mail qualifications and vitae, including samples of your work, to: Renzo Piano Workshop Foundation (Ref. 9th Ermanno Piano Scholarship), Via Rubens 29, 16158 Genoa, Italy. E-mail www.rpwf.org.

***Southern Living* Home Awards**
Entry deadline: May 31
Completed, furnished, and landscaped homes in the Southern states (unpublished) may be submitted in a binder, with descriptions, floor plans, and a minimum of three interior and three exterior photographs. Winners will be featured in *Southern Living* magazine; homeowners will each receive $1,000. For entry information, contact Erin Broussard or Lynn Nesmith 800/366-4712, x6358.

The Gifu World Design Competition: Jan Ken Pon (Rock Paper Scissors)
Entry deadline: June 30
The $10,000 first prize (also, prizes of $5,000, $2,500, and $500) will be awarded to the designer of a manufacturable object "usable by the hands or made to fit in the hands." Paper, wood, ceramic, and/or metal must be used. Call 212-966-3722.

Please submit information for the calendar to ingrid_whitehead@mcgraw-hill.com.

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ANSWERS

Questions appear on page 156. To receive CES credits, fill in the education reporting form below or on our Web site (www.architecturalrecord.com).

1. Toilets have such new features as a tank concealed in the wall and built in odor control. New residential toilets must be 1.6 gallon. Many architects, however, do not find this amount of water satisfactory, and find their clients must flush two or three times to evacuate waste. New models function better, requiring fewer flushes.

2. New technology for showers involves valves for balancing temperature and volume, and faucet finishes. An antiscald valve is required in some states. These valves are either pressure-balancing or thermostatic; both are designed to prevent the user from getting a blast of hot or cold water. Pressure-balancing valves track pressure changes in the hot or cold lines and adjust the water pressure accordingly. Thermostatic valves monitor pressure and temperature changes. Faucets with the new ceramic disk valve last much longer than the old metal and rubber fittings. New finishes are popular, such as pewter and nickel. But chrome, the old standard, is still the best choice for durability.

3. A ventilation fan is required in bathrooms to prevent moisture and odor buildup. Often, however, the fan is not used because it is noisy. New ventilation designs include a remote-mounted fan where the unit is in an attic or basement with ducts running to the bathroom. The fan can be controlled by a humidistat that turns it on when the humidity is above a set level, or by a motion detector that turns it on when someone steps into the room. A timer can be set with the light switch, or the fan and light switch can be turned on simultaneously. For odors, an exhaust plate mounted behind the toilet seat connected to a remote vent fan works well.

4. Hydronic heat, which produces warmth by circulating heated water through tubing laid beneath the floor, keeps the floor warm, keeps an even temperature, and does not set up drafts like forced-air systems, or take up space like radiators. Radiant tubing installed around the edges of the tub keeps bath water warm and prevents that shock of cold when a bather leans against the tub wall. If floors are tile or stone, electric mats, embedded in the mortar, warm the floors. Electric or hydronic towel warmers also help keep bathers warm.

5. A bathroom needs both ambient lighting and task lighting. Ambient lighting should be on a dimmer, using wall sconces, coves, or other sources to direct the light upward. Task lighting is used around the mirror at face height for applying makeup or shaving. Cross illumination at eye-level minimizes shadows. Space-planning goals include designing to provide maximum privacy to a person using the toilet while someone else is using the sink or shower.

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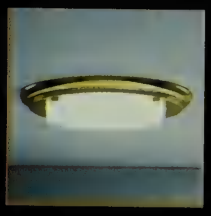
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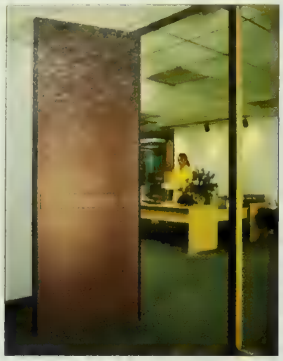
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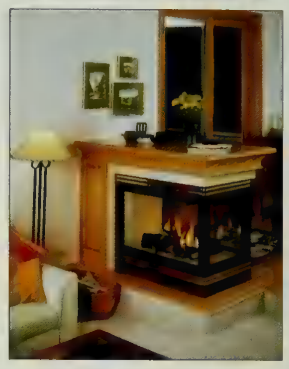


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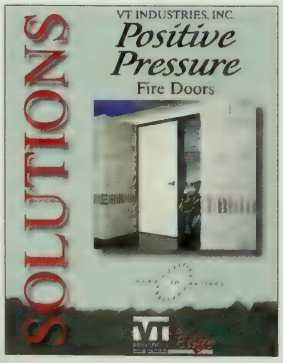


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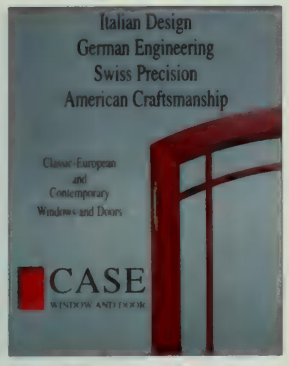
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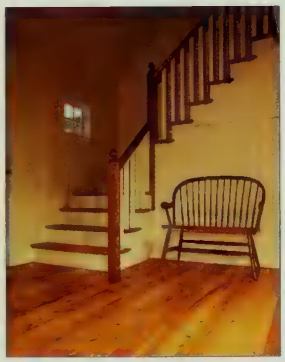


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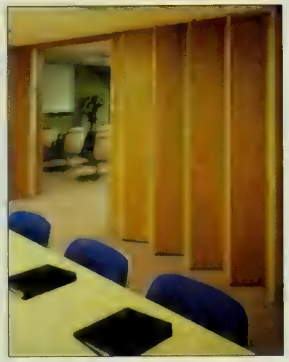


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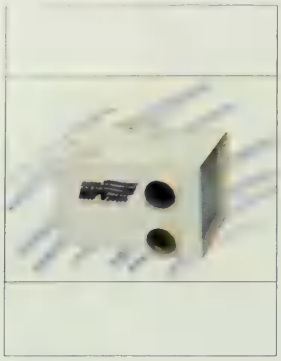


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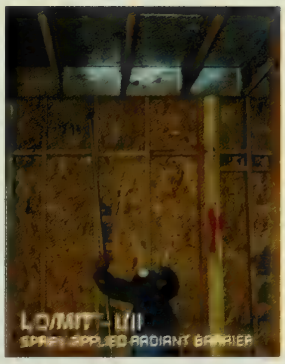


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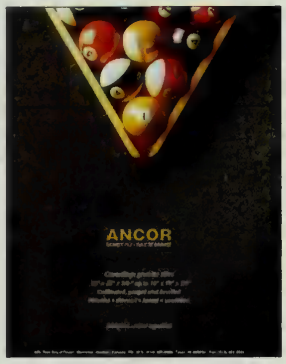


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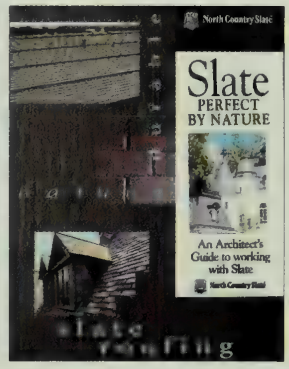


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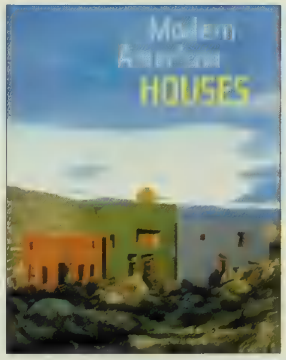
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Under supervision of licensed architect, perform preliminary architectural design, computer-aided drafting using AutoCAD and Microstation, detailing, freehand sketching, color rendering and computer generated 3-dimensional conceptual models and animation; prepare schematics and design development drawings; coordinate with structural, mechanical and electrical drawings; and prepare construction documents. Req.: MS in Architecture or foreign degree equiv. & demonstrated ability to perform stated duties by portfolio. Salary: $31,500-38,000 per yr. 8:30 am to 5:30 pm, M-F. Send resume to Cooper Carry, Inc., 3520 Piedmont Rd. Suite 200, Atlanta, GA 30305. Ref. JL001.

ARCHITECTURAL INTERN

Produce schematic design, planning, design development and contract document drawings for architectural projects; produce 3D modeling, rendering and other materials and documents for design and presentation by using graphic, modeling, animation and video editing software, including AutoCAD14, 3D Max2.5, Form.Z, Fast, Edit, Adobe Photoshop, Adobe Pagemaker and Freehand. Req. professional degree in architecture w/at least 6 mo. exp. and ability to read, write & speak Chinese. $31,500/yr. Must have proof of legal authority to work permanently in the U.S. No calls. Send cover letter and resume to: N. Hendrickson#9-419, MN Dept. of Economic Security, 390 North Robert Street, St. Paul, MN 55101.

ARCHITECTS NEEDED!

Senior Level Architects, are you interested in a career change or are you searching for better opportunities? Executive search and recruiting firm with 25+ years of experience in the architectural and engineering industry serving the nation's leading A/E firms. Please submit your resume to: CSS Search and Recruiting, c/o Duane McClain, 115 5th Ave. S., Suite 501, La Crosse, WI 54601. Fax: 608-784-4904. Telephone: 608-784-4711. Email: css@cssearch.com. For a current list of our job openings, log on to our web site at http://www.cssearch.com.

ARCHITECT INTERN

Architect Intern sought by architectural firm in Denver, CO, for architectural firm that designs single- & multi-family residential buildings, as well as hospitality, commercial & light industrial buildings, serve as the Designer on a project team & interact directly with clients on all phases of architectural design, including programming, conceptual design & construction administration. Use AutoCAD in the production phase, moving project to final construction, including schematic designs, design development, & production of construction documents. Serve as job captain to move projects from design development to construction document phase, coordinating work of managing consultants, engineers & structural consultants, & overseeing AutoCAD production. Requires Master's or 5-year Bachelor's degree in Architecture; 1 yr experience as an Architectural Designer working as a Team Leader directly with clients, & using AutoCAD for single & multi-family residential buildings, as well as commercial & light industrial buildings. $34,000/yr; M-F 8am-5pm (2 openings). Respond by resume to James Shimada, CO Department of Labor & Employment, Tower II, #400, 1515 Arapahoe St., Denver, CO 80202, & refer to Job Order No. CO4650614.

FACULTY POSITIONS AVAILABLE

ASSISTANT PROFESSOR RICE UNIVERSITY

Rice University invites applications and nominations for a tenure track appointment at the level of Assistant Professor. This full time position is available beginning Fall 2000 for a person qualified to conduct design studios and lecture courses at both the graduate and undergraduate level. Candidates should hold a Master of Architecture degree or its equivalent. Prior teaching experience and a record of scholarly work in related studies are desirable. Applications will be considered until 15 May 2000. Letter of interest and curriculum vitae should be forwarded to: Dr. Nana Last, Chair, Faculty Search Committee, Rice University, School of Architecture, MS-50, 6100 Main St., Houston, TX 77005. Rice University is an equal opportunity/affirmative action employer. Applications from women and minority candidates are encouraged. Rice does not discriminate on the basis of race, color, religion, sex, sexual orientation, national or ethnic origin, age, disability, or veteran status.

ARCHITECTURAL ENGINEERING UNIVERSITY OF WYOMING

The Architectural Engineering program at the University of Wyoming, located in Laramie, Wyoming, currently has over 200 undergraduate students and is one of thirteen ABET-accredited programs in the nation. The Department of Civil and Architectural Engineering at the University of Wyoming invites applications for a full-time faculty position in the Architectural Engineering program. This position will be best suited to an individual with an interest in teaching coupled with extensive professional experience in architecture and/or architectural engineering. Appointment may be made at the assistant professor level, which will require research and publication activities, or at the academic professional level, which will require continued participation in professional practice within the constraints of academic responsibilities and university regulations. Candidates for appointment at the assistant professor level should possess a doctorate in engineering or architecture; candidates for academic professional rank should have a master's degree in architecture or engineering. Experience and professional registration is expected of all candidates. Applicants for the position should be qualified and prepared to teach

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FACULTY POSITIONS AVAILABLE

courses in architectural graphics using AutoCAD, architectural design, and related technical courses associated with building design and construction. The successful candidate will begin duties in August, 2000. The University of Wyoming is an equal opportunity, affirmative action employer; qualified women and minority candidates are encouraged to apply. Interested applicants should send 1) a letter of application describing experience and reasons for interest in this position, 2) a current resumé, 3) the names, addresses (including e-mail if possible) and telephone numbers of three references to: Director of Architectural Engineering, PO Box 3295 Laramie, WY 82071-3295. Consideration of applications will begin May 15, 2000.

PROFESSOR AND DEPT. CHAIR

The College of Architecture and Planning at the University of Colorado at Denver invites applications and nominations for the position of full professor with tenure and Chair of its Department of Architecture. The appointment as Chair is for an initial period of four (4) years beginning January 1, 2001. For application information, visit http://www.cudenver.edu/home/ucd/jobs.html. The University of Colorado is an equal opportunity employer.

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Earth angels save historic religious buildings at risk

Interviewed by Ingrid Whitehead

Diane Cohen and Robert Jaeger spend a lot of their time in churches. But it's buildings they're trying to save, not souls. Co-founders in 1989 of the [illegible] nonsectarian organization Partners for Sacred Places [illegible]places.org), Cohen and Jaeger have three goals: to help congregations in their communities restore and sustain their churches and synagogues, to develop an effective national network of advocates for sacred places, and to make the public understand the value of sacred places as irreplaceable resources that enhance and nurture community life. RECORD caught up with them [illegible] Philadelphia offices.

Q: *What constitutes a sacred place?*

Robert Jaeger: There are lots of sacred places in the U.S., including many that are unbuilt. Partners for Sacred Places focuses on the built: convents, rectories, schools, monasteries, synagogues, and churches. Basically, historic structures originally built for religious purposes.

Why do these structures need saving?

Diane Cohen: Churches, synagogues, and meeting houses were, historically, the most important buildings, architecturally and structurally, in communities. These were where the most resources were invested, and when their physical condition starts to deteriorate, the congregation may not have anywhere to turn. Often, the art and craftsmanship in these spaces is comparable to that of city halls and other major public buildings. Less obvious is that these buildings are socially very important. These places are serving as community centers. They provide child care, homeless shelters, dance classes—programs for the entire community. And not just for the congregation, but for anybody.

RJ: We call them sacred places, but it's not the particular religion that matters. It's the social aspect that we want to keep vital. Often, these buildings have gone through one or more faith identity changes. From Episcopal to Pentecostal or whatever—the new owner or congregation is still always committed to social programs.

So when a congregation contacts you, how can you help?

DC: First and foremost we're a resource. We have the nation's biggest database on all kinds of specialty firms and services for restoring sacred places. We encourage good planning through conferences and workshops. While we don't directly fund restoration, we can help members of a congregation find grants and services that can help.

RJ: We're the place to turn to for anyone who's interested in learning about churches or synagogues. We also encourage architects and specialty craftspeople to become part of our network.

What's next for Partners?

RJ: A turning point for us is the book of research we recently published, Sacred Places at Risk, which came from interviewing over a hundred congregations. It includes statistics and evidence on how older churches and synagogues are serving communities. We really want to get a national fund in place, to help these spaces, to help communities keep their social programs going strong.

How old-fashioned! Your work actually encourages human interaction.

DC: That's true. Our desire is to take a step beyond preservation. The pleasure of coming together within a community should not be denied, and sacred places like the ones we save are exactly where that happens. ■

Photograph by Euclides Santiago, taken in St. Francis de Sales Catholic church

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